VIRGINIA WILDLIFE

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Director's Column

William L. Woodfin, Jr

Mel White

Make This a Safe Boating Year

The "Blizzard of 1996" is now behind us, and it's that time of year when we begin our plans to head to the water in search of relaxation and recreation. The combination of favorable weather and warmer water will provide us many opportunities to discover new sports or reacquaint ourselves with summer pastimes and, in Virginia, boating is a large part of the recreational activities near the water. It's exciting, relaxing—an opportunity to just have fun. So, with the summer season and National Safe Boating Week (May 18-24) just around the corner, this issue of *Virginia Wildlife* will feature an in-depth look at boating recreation.

Boating in Virginia is a real pleasure with many types of waterways and activities to choose from. We have 160 man-made and natural lakes, 3,200 miles of rivers, numerous ponds and reservoirs, and 500 miles of coastline. With all of this water around us, many boating sports have become popular hobbies for Virginians. Some of these boating sports include angling, waterfowl hunting, sailing, parasailing, water skiing, tubing/aquaplaning, windsurfing, scuba diving, rowing, canoeing, kayaking, cruising, etc. It's truly an exciting time to be involved in boating.

Each year thousands of people enjoy boating on our waterways. Boat registrations continue to increase, reaching just under 225,000 at the close of 1995. Additionally, there are thousands of smaller boats without motors which do not need to be registered, such as canoes, kayaks, windsurfers, small sailing boards, and rowboats. With the boat population increasing and the waterways remaining constant, it's getting extremely busy on the water. Just like on our highways, congested and crowded waterways require operators to exercise additional caution. Operating a boat, however, is unlike driving an automobile in that there isn't a predetermined path to proceed; other boats may come towards you from *any* direction. We must all learn as much as we can about boating safety to keep our passengers, ourselves, and our boats safe.

In 1995 Virginia recorded 180 boating accidents and, sadly, 23 fatalities. Most accidents occurred during a clear day, on calm water with light winds and good visibility. The causes of the accidents range from improper loading and overloading to hazardous water to operator inexperience. Of major importance is that nearly all of the accidents could have been avoided if the operator had been attentive to details before and after leaving the dock. The majority of the accidents in 1995 were caused by factors within the operator's control—either inexperience, excessive speed, no lookout or inattention. All boaters—passengers and operators alike—must take responsibility for learning how to boat safely and not be a part of creating the risk for accidents.

The Department's boating education program will assist any boating enthusiast in making that personal commitment to learn about boating safety. We offer many 8 hour *Virginia Boating Basics* courses throughout the state, in addition to sponsoring longer boating courses offered by the U.S. Coast Guard Auxiliary and the U.S. Power Squadrons.

A main focus in our boating education program for 1996 is personal watercraft (jet skis) safety and general boating safety education for youths. The number of registered personal watercraft in Virginia increased nearly 50 percent between 1994 and 1995, and about one-third of all boating accidents involve personal watercraft (PWC). Our education and enforcement staffs are reviewing accident statistics and developing an action plan to help decrease the accident rate of PWCs on Virginia's waterways. Helping our children understand boating safety can only contribute to a decrease in future boating accidents. Children learn quickly and will retain the information, aiding them in the development of lifelong, safe boating habits. As positive role models for our children, we will enhance the safety consciousness of a future generation of Virginia boaters. That's a major responsibility, but it's an investment with so many valuable benefits.

It is my hope that this issue of *Virginia Wildlife* will supplement your boating knowledge. Providing you, the boating public, with the tools to always be a responsible boater is our goal. So please, take advantage of our materials and our commitment to safe boating. With your own personal commitment, everyone's boating enjoyment in Virginia will be guaranteed. □

VIRGINIA WILDLIFE

Cover: Belted Kingfisher; *photo by Joe McDonald.*
Back cover: *Photo by Dwight Dyke*

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Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

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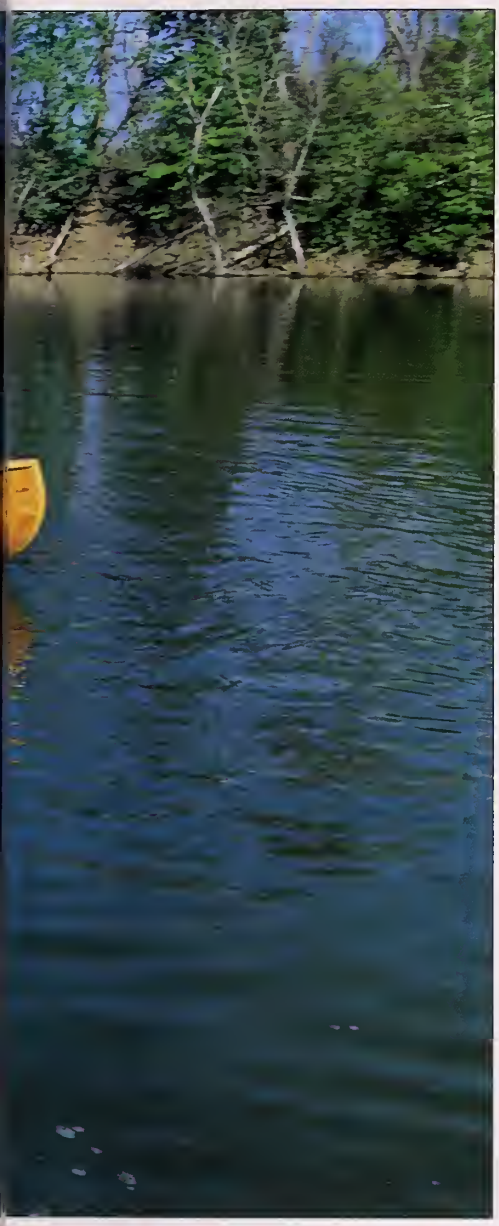
The Art of the

Dallas Marshall is an artist. From under his eyes and hands come canoes: sleek, elegant, richly colored works of art that will race through a Class 5 rapids like a bobsled shooting through its tunnel of ice or slit the immobile surface of a lake on a halcyon summer day. What follows is an essay in words and pictures on the creative process that Dallas goes through to make these working sculptures.



Wooden Canoe

by Colston Newton
photographs by Dwight Dyke

To anyone but Marshall, his light and lithe canoes would appear to be perfect.

To Marshall, the next one he builds will always be better.

"I try to improve them each time I build one," he says. To illustrate this, he points out how he now uses wooden plugs to hide the bolts that hold the canoes' woven cane seats in place. On his first canoes, the bolts showed. The bolts are the only hardware in the canoes. Everything else

Left: *Marshall's wooden canoes skimming across LaGrange Creek.*
Top: *The first step in making a canoe is forming the stems at either end.*
Above: *The manufacturing is simple with glue being one of only a handful of ingredients.*

in them is wood, fiberglass and epoxy.

Marshall built his first wood strip canoe eight years ago, using a pattern from two pattern books he owns. But it wasn't his first canoe. He built that when he was a 13-year-old kid in Enon, Virginia.

"I paid $45 for a mail order kit that was nothing but canvas and kindling wood," Marshall laughs. "But it was a pretty good little canoe. When I went out in it, I used to carry a piece of canvas and a tube of model airplane glue to make repairs."

Marshall can build canoes as short as 12 feet and as long as 18, but prefers building them in the 14 to 16 foot range.

"I could build them larger if somebody wanted it, but my shop is set up for canoes up to 18 feet," he notes.

His canoes aren't all the same. Some with almost flat bottoms are for still waters while others have more curve at the stem and stern and are built for whitewater.

"I can put a square stern on them, too, if that's what somebody wants," Marshall points out.

"Wood strip canoes are popular up North, places like the Boundary Waters region," he says, adding that they are rare in the South. "Up North a lot of people make them."

After building his first wood strip canoe, Marshall decided that he would like to make them for sale and started building his workshop in 1992. That involved more than simply putting up a building. He had to make the forms that the canoes are built on and a pair of "strong boys," the long support beams on which the forms and canoes sit during construction. Before opening LaGrange Creek Canoes for business, Marshall, who works alone, also created support rollers and other devices that allow him to saw and otherwise handle boards up to 18 feet long.

After two years of preparation Marshall was ready to start building his canoes for sale in 1994. Since then, he has sold 20 of them to people from all over Virginia.

Above: Marshall mills the cedar down into one-inch wide, one-quarter inch thick strips.
Right: The strips are bent along the form and lightly stapled.
Bottom: The rough strips are sanded before applying the fiberglass.
Far right: Fiberglass cloth is applied over resin and when set is sanded and several coats of marine varnish are applied.

"It takes five weeks to build a single canoe," Marshall notes, hastening to point out that he can work on four of them at a time since the canoes have to sit while epoxies, fiberglass resins and marine varnish dry.

Marshall's canoes are made from white cedar, which he buys from a local contractor as rough boards. The cedar is light and very strong for a soft wood and a lot of it is used in boatbuilding, Marshall observes.

Marshall mills the cedar down into one-inch wide, one-quarter inch thick strips in his workshop and carefully mills a bead and cove into each strip so that they will fit almost seamlessly together. It takes 50 of the strips to make a single canoe.

When Marshall starts one of his canoes, the first step is the forming of the stems at either end. Until they are formed, there is nothing on which to tack the strips as the canoe itself takes shape.

Like the canoes' body, the stems are white cedar, but, unlike the body, which is a single strip deep, the stems are made of three strips laminated together.

"I used to steam them into shape before putting them on the form," Marshall explains. "But, I've found out it's easier and just as strong to simply form them and laminate them at the same time as I clamp them to the form."

Once the stems are ready, Marshall applies the strips that make the canoes' body. He bends the limber strips along a precisely sized form, tacking them lightly to the form and finally the stems. On the finished canoes, there are tiny dark marks where the tacks have been removed from the canoes before they are finished.

Marshall angles the strips into ever shorter lengths so that they meet precisely in the center of the canoes' bottom, creating a straight line from stem to stern.

With the woodwork completed, Marshall first sands the canoe before applying fiberglass sheets to them, inside and out.

Once the strips are in place, the gunnels can go on. They are made of ash, a harder wood that better resists the scraping of paddles and all the other things that bang and bump the upper edges of watercraft.

"When you put the resin on, it'll draw down all by itself," Marshall points out. "I work the resin in with a squeegee or it'll bubble up. It takes three coats and each coat takes three hours to dry."

Once the fiberglass is set, Marshall uses a mixture of epoxy and sawdust to fill any knotholes in the white cedar.

"The fiberglass completely fills the holes, so they'd never leak, but they are the first thing people see when they look at the canoe," Marshall grins. "People don't like being able to see water through the bottom of their boat."

Marshall selects his white cedar boards carefully to minimize the number of knots, but there are always some. Along with the cedar's grain, which takes on lustrous red, orange, and yellow hues when fiberglassed, the knots help add the character that sets things made of natural products apart from those made by man.

Once the canoes are fiberglassed, Marshall has to sand them before he can add the coats of marine varnish that finish the canoe's exterior.

Determining what sander to use took some doing, Marshall recalls. "At first I thought I could use a regular automotive grinder," he laughs. "It's real hard to get into the curves and you're only working with quar-

ter-inch wood. The first time I tried it with the grinder. I cut a hole right through the bottom of the canoe."

Now Marshall uses a variable speed sander between the five coats of marine varnish each canoe gets.

Marshall's canoes weigh as little as 48 pounds for 14-footers and look delicate, but they are stronger than fiberglass canoes and more resilient than those made of aluminum, Marshall says.

With fiberglass, that's all there is, he points out. "Mine have fiberglass with wood inside it."

The wood's springy nature makes it more resilient than aluminum, too. It will give instead of tearing the way aluminum does and, unlike aluminum, when it's bent, it will pop back into shape.

"Anywhere fiberglass or aluminum canoes can go, these things can go," Marshall notes.

"I went with the Friends of Dragon Run, once, and they said 'You're not going to put that thing in here are you?'" Marshall recalls, adding that Dragon Run is full of beaver dams and fallen logs that canoes must be dragged across. "They were amazed at how my canoe stood up to the swamp."

Although the canoe was scratched, it was easy to fix because Marshall uses epoxy resin and marine varnish rather than polyester resins in his canoes.

"Epoxy never gets brittle, so it doesn't crack," he says. "If you get a scratch, a touch of marine varnish will seal back so you can't tell there was ever a scratch there."

Marshall's canoes can't be sunk either, he says.

"You can fill one with water and it won't sink," he maintains, and adds that he probably owes his life to that fact.

He tells of launching into the James River when, being unfamiliar with its upper reaches, he didn't realize it had risen above its normal level and had taken on a great deal more power than he expected it to have.

He was with his brother and within 30 minutes they hit rapids that flipped them.

"We lost everything and almost lost us," Marshall recalls, sheepishly admitting that he hadn't bothered to put a life vest on. "But the canoe floated and we were able to hang onto it to keep from drowning."

While Marshall often uses his canoes in Dragon Run Swamp, which he says he is "in awe of," he more frequently uses it to cruise LaGrange Creek right in front of his house, either running upstream to its narrow, marshy beginnings or downstream and out onto the Rappahannock River less than a mile away.

LaGrange is still pretty much a natural creek, home to bald eagles and ducks—mallards, black ducks, even canvasbacks.

Marshall's gleaming wooden canoes fit its ambiance well. □

Colston Newton is a senior writer for the Northumberland Echo *in Heathsville, VA. He covers all aspects of country life including hunting and fishing.*

The seats for Marshall's boats are made by hand as are the paddles that are made for the canoe.

Birding By Boat

Sometimes the Best Approach is by Water.

by Curtis J. Badger

I never thought of great blue herons as being cat-like until I watched one stalk a school of killifish not long ago. Like many of us who don't know better, I regarded great blues as somewhat lumbering and awkward. Adjectives such as feline never came to mind.

But on a Sunday afternoon last year, paddling my canoe up a remote creek, I watched a great blue hunt with cat-like grace and stealth, a combination of patience, cunning, skill, and, at the proper moment, extraordinary swiftness. It stalked those killies for more than a half-hour, striding through the shallow water with movements so deliberate they were almost imperceptible, like the minute hand on a clock. The heron's long neck extended forward, its huge yellow eyes intent on the clear water of the stream. I could see the neck flex and move slightly, as if the bird were testing its muscles, tightening its spring.

The little killifish, swimming among the submerged grasses of the stream, nibbling on bits of detritus, had no idea the heron was around. He approached them as a lion might approach a gazelle, slowly and with the utmost cunning and patience, as if he were savoring each dramatic moment of the chase. Then suddenly he struck, providing a violent denouement to this particular drama. A killifish wriggled in the heron's beak, flashing its white belly in the sunlight. The great bird shook its head side-to-side, flipped the fish to a head-first position, and downed it with evident satisfaction. The heron flexed its long neck, strode through the shallows, and began hunting again.

What the heron didn't realize as he stalked his dinner in the shallow creek, was that he, too, was being stalked. My wife and our 10-year-old son, Tom, and I were about 40 feet away, gliding silently toward the bird in our 16-foot canoe. Our predator-prey relationship with the heron was a bit different than his association with the killies. He wanted to eat them; we just wanted to get him on a few frames of Kodachrome.

So for 30 minutes the heron stalked the fish, and we stalked him. Now and then he would coil his slender neck and strike; I would knock off a few more frames with the Nikon. Finally, the bird tired of the sport, and with a raucous trumpet of disgust, he flapped his wings a few times, then glided farther upstream, hoping to finish his meal in peace.

I didn't feel particularly bad about interrupting the bird's lunch. I had gotten some good pictures, Tom had a good story for his fourth-grade class, and it proved to us that our canoe was a perfect vehicle for getting close to birds. The heron tolerated our presence for a surprising-

Curtis J. Badger

Susan M. Glascock

©Dwight Dyke

Top: *A blue heron plunges at his prey.* ***Above:*** *Banded killifish, food for great blue herons.* ***Center:*** *Good binoculars will make bird watching and boating more fruitful.* ***Right top:*** *You can get surprisingly close to birds like the myrtle warblers when you approach by boat.* ***Right center:*** *Kingfishers are a common sight for the boating birder.*

ly long time, and he allowed us to approach much closer than had we been on foot.

Since stalking the great blue heron that Sunday afternoon, birding trips by canoe have become a weekend ritual for us. On our most recent trip, we shared a myrtle thicket at the head of a creek with dozens of yellow-rumped warblers, who busily munched bayberries as we ate our ham sandwiches and drank Cokes. We had pulled our canoe into the thicket for our lunch break, and the yellow-rumps didn't seem to mind having our company, as long as we stuck to our sandwiches and left the berries to them.

The nice thing about a canoe is that it can take you to places too soggy to explore on foot, yet totally inaccessible by larger boats. Birds seem tolerant of canoes, even when they contain three humans.

Birds seem to think that canoes are some sort of bulky but benign marsh critter that has every right to be there among the cordgrass and myrtles. And so, canoes are the perfect vehicles for birdwatching. As long as you're relatively quiet and remain seated in the boat, you can get surprisingly close to wild birds and explore habitat that normally would be inaccessible.

Rob Simpson

Joe McDonald

Traveling in a canoe is like taking a back door approach to birding. Birds expect danger to come from land in the form of humans, foxes, feral cats, and other predators; or from overhead, as in a swift assault by a passing sharp-shinned or Cooper's hawk. They don't seem at all put out by a 16-foot canoe lumbering up the headwaters of a narrow creek.

The myrtle thicket where we shared lunch with the warblers borders a farm field where I often go hiking. I walked the farm the week after our canoe outing, and the yellow-rumps were still in the myrtle bushes, but they would let me approach only to within about 30 feet before flitting off to the next thicket. Even when they stayed put, they were on constant alert, keeping an eye on me rather than fueling up with berries. Hence, another advantage of the canoe: the birds you see are usually going about standard bird business, not eyeing you with a mix of fear and curiosity.

Canoes and small skiffs are obviously good choices for watching and photographing waterfowl and shorebirds, but you can also see a surprisingly large number of upland birds from a small boat, especially if you paddle toward the head of a stream that winds through woodland and farm fields.

We live on the Virginia coast, which presents us with almost unlimited opportunities for paddling tidal creeks and brackish streams, representing a wide cross-section of habitats. The creeks we normally explore are bordered by a band of narrow marsh, then thickets of wax myrtle, greenbriar, cedar, sweet gum, and oak, which make up the fringe of a farm field. Most of the upland birds using that particular field are found in this edge habitat, the narrow fringe of hardwoods that separate the field from the marsh. Here in this narrow thicket they have protection from predators, plentiful and varied sources of food, and adequate places to nest and rest. So in habitat like this, your best approach for a close look at upland birds might actually be by water rather than by land.

We normally put in along the wider portions of a stream and then paddle toward the headwaters. If it's a tidal creek, we time the trip to take advantage of the rising tide as we paddle up the creek, and then we return on the falling tide. Our standard procedure is to put in perhaps two hours before high tide, then float upstream while the tide is rising, eat lunch at slack tide, then return as the tide ebbs. We're not inherently lazy, but paddling against a strong current is not our favorite hobby.

By beginning a birding-by-boat trip on a wider piece of water and then paddling toward the headwaters, you can pack a lot of variety into a relatively short trip. On a creek we frequently explore, we

begin at a wide, shallow area that is typical tidal saltwater habitat. Depending upon the season, we will see, within minutes of putting in, laughing gulls, herring gulls, and, in winter, ring bills. We can count on least, common, and Forster's terns. We'll see double-crested cormorants, ospreys, greater yellowlegs, whimbrels, black skimmers, willets, glossy ibises, clapper rails, boat-tailed grackles, and perhaps an American oystercatcher.

Fall through early summer are our favorite times to go because the weather is invigorating and the waterfowl are in. We can depend on seeing hooded and red-breasted mergansers, buffleheads, lesser scaup, and occasionally other diving ducks on the deeper open stretches of the creek, then as we paddle upstream we'll find black ducks, green-winged teal, blue-winged teal, mallards, American wigeon, wood ducks, and the occasional northern pintail. Great blue herons are common, and now and then we'll see tricoloreds and little blue herons.

As the creek narrows and becomes brackish, the habitat changes quickly. Salt marsh cordgrass *(Spartina alterniflora)* gives way to black needlerush, fleabane, and sedges, and we see red-winged blackbirds, black-crowned night herons, belted kingfishers, and perhaps a king rail. Northern harriers will patrol the marsh and adjacent fields, and we'll usually see a red-tailed hawk or two soaring overhead.

The real nitty-gritty of boat birding comes when the creek narrows down to a trickle, and you have marsh grass brushing the boat on both sides. When the stream winds around a woods or field edge, you're likely to see most anything. Within the space of a few dozen feet, you might jump a pair of black ducks, disturb a sleeping great horned owl, launch a great blue heron, put up a covey of bobwhite quail, watch a harrier catch a field mouse, see a kingfisher hover and dive, spot in the underbrush brown thrashers, American robins, northern mockingbirds, a variety of sparrows, finches, cedar waxwings, marsh wrens, and thrushes. And then, perhaps, you might have lunch with a group of yellow-rumped warblers.

Birding by boat is a modest sport, requiring only the most fundamental of craft. You don't need a canoe made of expensive, space-age plastics, and you don't need anything with a racing hull. Our birding boat is a heavy, fiberglass Old Town, one of the first molded fiberglass canoes the company made. We bought it through a newspaper classified ad about ten years ago, and it sits patiently and uncomplaining in our backyard, waiting for those Sunday trips when we load it into the truck for the ride down to the creek.

Small fish are a large part of the great blue heron's diet.

The old canoe has long since been replaced in Old Town's line by sleeker, lighter, more modern craft, but it's all we need for the occasional birding trips. The boat is efficient, undemanding, and tough as a hockey puck. We hose it off after each use, and every couple of years we'll give it a coat of wax.

I suppose a small skiff or a johnboat would suffice for birding trips, but flat-bottom boats need to be poled rather than paddled, and a human standing in a boat would be just as intimidating to a bird, I would think, as a human approaching from a soybean field. Besides, canoes are faster, more maneuverable, easier to propel, and better able to negotiate tight passages through the marsh. The American Indians used them for many generations for hunting and trapping in the marshes, so the design is indeed a time-tested marriage of form and function.

Other than a proper boat, the only other necessities for a productive boat birding trip are binoculars, a field guide, and whatever you might want to share at the covered-dish dinner with the warblers. I might add that a topographic map is an almost indispensable tool, especially if you're canoeing unfamiliar waters. We use topos to plan our trips because they make it easy to select areas where we can explore a wide variety of habitats—and therefore see a wide variety of birds—in a relatively short trip. We look for convenient put-in locations along a fairly wide body of water which quickly narrows to a modest stream. We look for streams that wind through farm fields and woodlands rather than more populated areas. If a convenient put-in happens to be on private property, it's usually easy to get permission to launch.

If you don't own a canoe or other small boat, you might consider renting one for an afternoon outing. Most communities near lakes, rivers and navigable streams have canoe outfitters that will rent a boat, paddles, and safety equipment for a modest price. Most outfitters also offer lessons in basic canoe handling and safety. Many will be able to steer you toward good birding areas.

When we travel, we often rent a canoe instead of cartopping our boat. We don't feel that we've really taken advantage of a weekend birding trip to a new location unless we spend a few hours exploring the territory by water. Paddling is good exercise, a welcome break from the monotony of the highway, and there are always opportunities for those special surprises, such as sharing lunch with a congregation of warblers, or stalking a great blue heron while he stalks prey of his own. ☐

Curtis Badger is a writer and photographer who lives along the Chesapeake Bay on the Eastern Shore. "A Naturalist's Guide to the Virginia Coast" was published in July.

Virginia Boating

A Guide to Safety

Virginia's Waterways Float My Boat!

Did you know that for every 22 people in Virginia, one adult owns a boat of some kind? That's right; Virginians own a lot of boats. That's because Virginia has so many different types of waterways that provide recreation for lots of people with lots of interests. The freshwater lakes, rivers, ponds, reservoirs and the saltwater coastal areas are very popular for waterfowl hunting, fishing, sailing, windsurfing, water skiing, tubing, aquaplaning, canoeing, kayaking, crewing, parasailing, scuba diving/snorkeling, cruising, etc. No wonder Virginians own nearly 225,000 registered boats. There are such a variety of ways to enjoy boating.

Boating can be one of the most exciting, as well as one of the most relaxing, activities people can enjoy outdoors. With more boats than ever on Virginia's waterways, it is time to consider the boat operator's responsibility for the passengers, other boaters, non-boaters, swimmers, property owners, anglers, hunters and sports enthusiasts. That's right; boat operators are legally responsible for practicing safe and controlled boating, as well as helping others in an emergency. We constantly need to remind ourselves about common courtesy and safety to keep our shared waters enjoyable and pleasurable for all. Knowing how to reduce boating injuries and fatalities, as well as being aware of community boating issues, will allow boat operators and passengers to enjoy their boating sport even more.

The Virginia Department of Game and Inland Fisheries offers and supports free boating safety courses as a way for people to learn safe boating practices. With the development of a boating education program in Virginia, through 1994 the ratio of the number of accidents to the number of registered boats decreased. However, due to the continuing increase of boats on the water each year, our margin for error in avoiding accidents is becoming less and less. This is why we must all work together to keep our waterways safe. One accident is still too many for something that is supposed to be fun. Most boating accidents can be prevented with basic boating knowledge and some advance preparation.

In this section of *Virginia Wildlife*, readers will have access to an abundance of information concerning personal flotation devices (life jackets) and other boating equipment requirements, safe boating education, boating laws, registration and titling information, navigation aids and emergency procedures. We invite you to read the information and learn something new, or simply refresh your memory since the last boating season. The information is helpful for all water enthusiasts: boat operators and others. The courteous and responsible boater is always welcome on Virginia waterways, and we hope you have a most enjoyable experience.

Thank you for your support in keeping Virginia's waterways safe!

Kathy D. Gillikin
Boating Education Specialist
Virginia Department of Game and Inland Fisheries

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Written by Kathy Gillikin
Edited by Charles A. Sledd, *Manager, Boating and Resource Education*
Photographs by ©Dwight Dyke

Special thanks to Nancy Jamerson and the Boat Section staff for their assistance with writing and editing the registration article.

5/96

Virginia Boaters are Offered a Variety of Educational Courses

by William O. Antozzi
Boating Safety Officer, Virginia Department of Game and Inland Fisheries

There are many boating safety courses being offered to the Virginia boating public which provide useful and necessary information. The Virginia Department of Game and Inland Fisheries (VDGIF) offers an 8 hour course called *Virginia Boating Basics*. The U.S. Coast Guard Auxiliary and the U.S. Power Squadrons offer more extensive boating courses of various lengths. All of the courses are sponsored by the state and accepted by the U. S. Coast Guard and the National Association of State Boating Law Administrators. Course subjects include basic boating skills and safety, boat hulls, choosing the right boat, legal requirements, docking, anchoring, boat handling, cruising, seamanship, navigation, piloting, aids to navigation, navigation rules, fire hazards, weather, knots, marine engines, marine radio communications, water sports, trailering, and environmental protection. Some of the organizations offer separate classes on these individual topics or speciality courses on canoeing/kayaking, boating and children, personal watercraft operation and sailing.

Above: *The VDGIF course is primarily in the classroom.* ***Below:*** *Some courses may involve "hands on" activities.*

Course length for general boating education courses varies from eight to 28 hours, depending on which course you decide to take. All instructors are volunteers and are certified in the field of boating through the U.S. Power Squadrons or the U.S. Coast Guard Auxiliary. The Virginia Department of Game and Inland Fisheries' *Virginia Boating Basics* course is free and is scheduled throughout the state in various 8-hour increments, usually during spring, summer, and fall months. The U.S. Coast Guard Auxiliary's 26-28 hour course is called *Boating Skills and Seamanship* and includes an in-depth look at general boating safety topics. The *U.S.P.S. Boating Course*, is a 14-hour course presented by the U.S. Power Squadrons that also covers more extensive information than the Virginia course. The U.S. Coast Guard Auxiliary and the U.S. Power Squadrons course instruction is free, but there is a minimal fee for class materials, texts and workbooks.

With nearly 225,000 registered boats in Virginia, we have a vast audience for the formal boating courses offered. Yet, we need more partic-

ipants from the boating community to take advantage of our more than 520 certified boating instructors who volunteer their time to pass along their knowledge and help make Virginia a safe boating state.

There are numerous benefits in taking an approved boating safety course in Virginia. First of all, participants learn boating safety skills, equipment requirements, pertinent laws and become better-informed resource-users. Additionally, course participants learn how to avoid and prepare for boating emergencies. Those who successfully complete an approved course are often provided premium discounts by major insurance companies. The Virginia Department of Game and Inland Fisheries maintains computer records of individuals who have successfully completed a course presented by either the State, U.S. Coast Guard Auxiliary or U.S. Power Squadrons. Upon favorable completion, students certify their attendance with the State boating program, earn a safe boating certificate and receive an identification card. Please consider taking part in a boating safety course to make our waterways the safest they can be.

If you are interested in taking a State course, please contact your area's Regional Boating Education Coordinator listed below.

Region I - Greater Richmond Area
James S. Richardson, Jr. - (804) 270-4580; Richmond, VA

Region II - South Central Virginia
Paul M. Howell - (703) 774-2619
Roanoke, VA

Region III - Southwest Virginia
William H. Perry - (703) 835-9617
Coeburn, VA

Region IV - Blue Ridge Area
James E. Crosby - (804) 823-2277
Crozet, VA

Region V - Northern Virginia
Jerald M. Mittlebach - (703) 866-5853
Springfield, VA

Region VI - Tidewater Area
Everette L. Tucker - (804) 898-8151
Yorktown, VA

Top: *In the classes you learn that you can get a helping hand from the Coast Guard Auxillary.*
Above: *Precautions for bad weather boating are part of the class.*

Comparison of Boating Safety Education Courses

	Virginia Course	U.S. Coast Guard Auxiliary	U.S. Power Squadrons
Title	Virginia Boating Basics	Boating Skills & Seamanship	The U.S.P.S. Boating Course
Hour Required	8 Hours	26-28 Hours (A shorter course is sometimes offered.)	14 Hours (A shorter course is sometimes offered.)
Topics Covered	All about boats; legal requirements; navigation rules; preparation/trailering; accidents; weather; water sports	Boat construction; boating vocabulary; boat handling; legal requirements; navigation rules & aids; piloting, marine engines; knots; basic sailing; trailering; weather; radiotelephone; inland waterways, locks & dams	Same subjects as the U.S. Coast Guard Auxiliary
Exam	Multiple Choice Exam	Multiple Choice Exam	Multiple Choice Exam
Contact:	Regional Boating Education Coordinator (see list)	Call the BOAT/U.S. Course Hotline (1-800-245-BOAT)	

Yes, Virginia, You Must Register Your Boat

All boats which are principally operated on Virginia waters and propelled by machinery (including gasoline, diesel and electric motors) *must* be registered and issued a Virginia Certificate of Number (three-year registration) by the Virginia Department of Game and Inland Fisheries. If the owner will be operating the boat prior to receiving the three-year Certificate of Number, a 30-Day Temporary Registration Certificate can be purchased. The Certificate of Number is the official registration record for your boat and MUST be available at all times during operation of the boat. A Certificate of Title is a legal document that provides proof of ownership, protects businesses that lend money for boat loans and assists in the recovery of stolen watercraft. The Certificate of Title is legally required for all powered watercraft 15 feet or more in length that have a motor which exceeds 25 horsepower and any sail-powered vessel in excess of 18 feet in length.

Certificate of Number (Permanent Registration)

When anyone buys a new boat, the new owner must apply for a Certificate of Number. The Certificate of Number must be on board at all times during boat operation, just like automobile registration cards. If your vessel is boarded by local, state or coastal authorities, you must present your Certificate of Number as proof of registration. Application for this Certificate can be made at the headquarters of the Virginia Department of Game and Inland Fisheries in Richmond, Virginia. The form you need to complete for registration is the "Application for Motorboat Certificate of Number/Certificate of Title" and is available from most boat dealers, agents who sell hunting and fishing licenses and the Department's headquarters or regional offices. The application requires a detailed description of your boat including the make, length, model year, hull material, type of propulsion, 12-digit hull identification number assigned by the manufacturer and other information. With your application you also need to send in one of the following supporting documents for proof of ownership.

Supporting Documents for Permanent Registration

- *If you have a new motorboat,* send in the original manufacturer's or importer's Certificate of Origin and a copy of the bill of sale issued by the dealer.
- *If your boat was previously registered in Virginia,* send a signed bill of sale from the registered owner(s) or a "Notification of Change in Status of a Numbered Vessel" form, completed and signed by the former owner(s).
- *If your boat was previously registered in another state by someone other than you,* send a copy of the Certificate of Number and a copy of the bill of sale signed by the registered owner(s).
- *If your boat was previously titled in another state by someone other than you,* send the original title with the "Assignment of Title" completed by the titled owner(s).
- *If your boat was previously registered in another state by you,* submit a copy of the out-of state registration.
- *If your boat was previously titled in another state by you,* submit the original title.

Fees for the Certificate of Number (Three-Year Registration)

Motorboats less than 16 feet	$18.00
Motorboats 16 to less than 20 feet	$22.00
Motorboats 20 to less than 40 feet	$28.00
Motorboats 40 feet and longer	$36.00

Boaters may deliver completed applications, supporting documents and fees in person or send them to the Boat Section, Virginia Department of Game and Inland Fisheries, 4010 West Broad Street, P.O. Box 11528, Richmond, VA, 23230-1528. Checks or money orders in the exact amount should be made payable to the Treasurer of Virginia.

Displaying Your Registration Number

Once you receive your official and permanent Certificate of Number, you will need to sign the Certificate and carry it on your boat during operation. The registration number assigned to you will be listed on the Certificate and must be displayed on each side of the forward half of your boat. The registration number is comprised of the following: VA (for Virginia), space or hyphen, 3 or 4 numeric characters, space or hyphen and 2 alpha characters. The alpha-numeric characters can be either painted or attached to both sides of the boat, as close to the gunwales and front as possible. The characters *must* be at least three inches tall in block style, contrast in color with the hull and read from left to right. A space or hyphen must separate the VA symbol and the letter suffix from the numerals.

Renewal of Your Certificate of Number Upon Expiration

Your Certificate of Number is valid for three years and expires on the First day of the month in which it was originally issued. Renewal notices are mailed to all boat owners 60 days before the expiration. The registration number originally assigned to your boat remains the same and should never be removed. To keep updated records at the Department of Game and Inland Fisheries, it is essential that all boat owners comply with the law—boat owners are required by law to report any ownership changes within 15 days to the Department of Game and Inland Fisheries. This means that if a registered boat is sold, destroyed, abandoned, stolen, or there is a mailing address change, the boat owner *must* notify the Department as soon as possible with the information.

Decals

All boat owners who are issued a Certificate of Number will receive two Virginia decals. The decals show the month and year of expiration, in addition to the registration number assigned to the boat. Only current decals should be affixed to the boat's hull within 6 inches of the corresponding registration number. Lost, defaced or destroyed decals *must* be replaced. A fee of $1.00 will be charged for each decal or set of decals replaced. Application for replacement must be made to the Department of Game and Inland Fisheries.

Out-of-State Motorboats

Motorboats which are registered by the owner in a state besides Virginia may be kept/operated in Virginia for not more than 90 consecutive days without Virginia registration.

Interstate Vessels

Vessels documented by the U.S. Coast Guard for use in interstate waters cannot be titled or registered in Virginia.

Temporary Registration

So, you bought a motorboat and now you can't wait to operate it on the water. You know it will take a while until you receive your permanent Certificate of Number. What should you do? Well, fortunately, Virginia has a Temporary Registration Certificate that is valid for 30 days and may be purchased through all Hunting and Fishing License Agents for $10.50. With the Temporary Registration Certificate, you are not required to display registration numbers on the outside of your boat. However, you MUST CARRY the Temporary Registration Certificate at all times and have it available for inspection by any Commonwealth law enforcement officer. This Temporary Registration Certificate may be used when you have...

* ...purchased a new motorboat;
* ...registered a motorboat in your name but allowed the registration to expire;
* ...acquired a previously-owned motorboat with an expired Virginia registration; or
* ...moved to Virginia and do not have a valid boat registration from another state.

Supporting Documents for Temporary Registration

To purchase a Temporary Registration Certificate, you need to show proof of ownership as well. This can be done with one of the documents which are listed on the next page.

Motorboat Registration

Issued in the name of the owner, either in Virginia or out-of-state

Issued in previous owner's name with a bill of sale (receipt) or "Notification of a Change in Status" form signed by the previous owner

Title to a Vessel

Issued in the name of the owner, either in Virginia or out-of-state

Issued in the previous owner's name with the title signed over to the purchaser

Manufacturer's Certificate of Origin

Issued by the dealer for a new motorboat

Bill of Sale

Issued and signed by the seller that includes a description of the motorboat (make, length, model year and hull identification number)

Certificate of Title for Your Watercraft

Certificates of Title serve as legal documents that show proof of ownership, protect businesses which lend money for boat loans and aid in the recovery of stolen watercraft. All owners of watercraft that are 15 feet or longer with motors in excess of 25 horsepower, and owners of sail-powered vessels longer than 18 feet must be issued a Certificate of Title in addition to the Certificate of Number by the Department of Game and Inland Fisheries. The Certificate of Title is obtained after paying a 2 percent watercraft sales tax, even for watercraft previously titled in Virginia. This sales tax can be paid directly to the Department of Game and Inland Fisheries' headquarters, the Virginia Tax Department or at the time of purchase, to your boat dealer. The same application is used for the Certificate of Number and the Certificate of Title. Many boat dealers have a supply of application forms, but if not, you may also find them at the Department offices or with agents who sell hunting or fishing licenses.

When you apply for a Certificate of Title, you will need detailed information about your craft, including the make, length, model year, hull material, type of propulsion and the 12-digit hull identification number; and information about your motor, such as the make, horsepower and motor serial number. The application requires the lienholder's name and address, if any. Supporting documents are necessary to prove ownership and must be submitted with a completed application. If your titled watercraft is sold, destroyed, abandoned or stolen, or if there is a change in your mailing address, you are required by law to report this information to the Department of Game and Inland Fisheries within 15 days. Listed below are your available options to show evidence of ownership.

Supporting Documents for Title of a New Watercraft

- The original manufacturer's or importer's Certificate of Origin *and* a copy of the sales invoice issued at the time of purchase by the dealer are required.

Supporting Documents for Title of a Previously-Owned Watercraft

- *If the watercraft has been titled in Virginia or out-of-state,* send the original Certificate of Title, completed and signed by the titled owner(s).
- *If previously registered only in Virginia,* submit a signed bill of sale from the registered owner(s).
- *If previously registered out-of-state,* send a copy of the Certificate of Number and a signed bill of sale from the registered owner(s).

Fees for Titling

Watercraft Sales Tax = 2 percent of gross purchase price of boat and motor (less trailer)

Titling Fee = $7.00

Duplicate Title = $2.00 (when original is lost, defaced or destroyed)

Change of Motor Title = $2.00 (The original Title must be submitted.)

Record Supplemental Lien on Previously Titled Watercraft = $7.00 (The original Title must be submitted with the Supplemental Lien Application.)

Boaters may deliver completed applications, supporting documents and fees in person or send them to the Boat Section, Virginia Department of Game and Inland Fisheries, 4010 West Broad Street, P.O. Box 11528, Richmond, VA, 23230-1528. Checks or money orders in the exact amount should be made payable to the Treasurer of Virginia.

Registration and titling information is useful for any boat owner and is included in the *Virginia Motorboat Owner's Guide.* Please help the Virginia Department of Game and Inland Fisheries' Boat Section keep state records current by registering your new boat or renewing your boat registration in a timely fashion. If you need assistance completing any forms or have a question, please call the Boat Section at (804) 367-0939. Enjoy the upcoming boating season and let's be safe out there! The Department of Game and Inland Fisheries looks forward to serving you in the future. ☐

Department of Game and Inland Fisheries' Offices

Headquarters:
4010 W. Broad Street - P.O. Box 11528
Richmond, VA 23230-1528
(804) 367-1000
Boat Section - (804) 367-0939;

Note: Regional offices do not register or title boats. However, the offices do have blank applications available.

Region I:
5806 Mooretown Road
Williamsburg, VA 23188
(804) 253-7072

Region II:
Route 6, Box 410
Forest, VA 24551
(804) 525-7522

Region III:
Route 1, Box 107
Marion, VA 24354
(540) 783-4860

Region IV:
P.O. Box 996
Verona, VA 24482
(540) 248-9360

Region V:
1320 Belman Road
Fredericksburg, VA 22401
(540) 899-4169

PFDs Are For Everyone

Personal flotation devices (PFDs) are designed to keep you afloat and save your life in an emergency situation, even when you are unconscious or injured. A PFD will keep you buoyant until help arrives. It is important for all boaters to wear a PFD, but it is especially important for children and non-swimmers to wear them. So why are so many people ignoring the fact that PFDs save lives and resisting the need to wear them? Last year in Virginia there were 23 fatalities caused by boating accidents. Most of the deaths were caused by drowning. Nearly all of the drownings could have been prevented if PFDs had been worn.

Everyone likes to have a good time out on the water! Boating enthusiasts are no different. Being on the water is a great way to relax and relieve pressures from the office. It's a good excuse to spend quality time with your family while cooling off on those hot, summer days. Many people boat while they engage in other activities, such as fishing, hunting, bird/wildlife watching, water sports, etc.

What a great time to show off your "unique physique" and get a tan! Some might think that wearing a personal flotation device would just cover-up her/his body and make strange tan lines. Perhaps you use a boat to fish or hunt. You might think it's not cool to wear a PFD when you're just sitting in a boat waiting for fish to bite or for ducks to appear. One might believe that there is no risk of falling overboard when fishing. Besides a PFD is too bulky and uncomfortable, or is it?

Jeremy's Lucky Day

What would have happened if little Jeremy, who was making progress in the "Guppies" swimming class, wasn't wearing a personal flotation device (Type I PFD-Off-shore Life Jacket) when his dad suddenly ran aground on their last James River fishing excursion? Due to his small body, Jeremy was hurled out of the boat by the unexpected jolt and landed in the middle of the river. The water was over his head.

Jeremy was so shaken by the experience that he forgot everything he learned from his Guppies teacher. In fact, his gasp reflex kicked-in when he hit the cold, river water, and Jeremy breathed in some of the James. After several bobs up and down, coughing and spitting out water, Jeremy started to calm down and breathe normally. Jeremy's PFD kept his chest and head up so he could breathe air, not more water. His dad threw a cushion on a rope (Type IV PFD- Throwable Device) to Jeremy and pulled him to safety.

Jeremy's dad was very relieved that he made his son wear the bulky PFD over his warm jacket. Jeremy's mother, other relatives and friends were relieved, too.

Crash After Dark

And what about Brent and Danielle? They were enjoying the afternoon on Smith Mountain Lake in their 16-foot outboard motorboat, kicking back, eating the usually forbidden junk foods and drinking light beer. Brent's older sister, Lori, had agreed previously to be the designated operator with one stipulation: Brent and Danielle must wear PFDs. The PFDs were kind of lumpy to wear, and not very flattering, but Brent and Danielle really wanted to spend the day on the boat, so they agreed to wear the PFDs (Type II PFDs—Near Shore Buoyant Vests). The group had a fun afternoon in the sun, cruising around on the water and swimming, but now it was time to head back to their dock.

As the sun was nearly down, it became increasingly more difficult to see. Lori turned the boat's lights on. She was reassured that she would see boat lights before she would run into anyone. After all, it wasn't foggy or anything. Being familiar with the lake and water depths helped, too.

Without any warning, a bigger boat broadsided Lori's boat. Fortunately, neither boat was moving very fast due to the darkness. It was so abrupt that no one had time to react or prepare. Lori, Brent and Danielle were tossed out of their boat, along with two passengers from the other, bigger boat. In the frightening darkness, people cried and screamed for each other. Everything was black except for the quarter moon shining down on the water, allowing a sliver of light to guide them.

Lori popped up to the surface with her PFD (Type I—Off-shore Life Jacket) and swam around fran-

Opposite page: *Everyone should wear a PFD, even when you are being towed in a tube.*
Top and below: *Water skiers typically use the more comfortable, Type III PFDs since most skiers use the "trial and error" method of perfecting their sport.*

Children's P.F.D. Size Chart Guide

P.F.D. Size	Weight	Chest Measurement	Age
Infant	less than 30 lbs.	16″ - 20″	Newborn - 2 years
Child Small	30 - 50 lbs.	20″ - 25″	2 years - 6 years
Child Medium	50- 90 lbs.	25″ - 29″	6 years -12 years
Youth Long	50 - 90 lbs.	26″ - 29″	6 years - 12 years
Adult	90 lbs. and more	30″ and larger	12 years and older

tically, searching for her brother and Danielle in the darkness. After what seemed like forever, she found them floating 50 feet from the boat. Brent was conscious, but his arm and leg had been injured from the impact. Danielle was unconscious, but was floating face-up, breathing. Hopefully, Danielle didn't have a head or neck injury. At least she was breathing! Since both Brent and Danielle were wearing their Type II PFDs, they were able to stay afloat, even with their injuries.

The passengers on the bigger boat were not as fortunate as Brent, Danielle or Lori. The difference was that the passengers on the bigger boat weren't wearing their PFDs. The accident happened so suddenly that the passengers did not have a chance to grab PFDs before they landed in the water. Perhaps the combination of the alcohol and the crash contributed to the unconsciousness of two passengers and, without being able to keep their heads out of the water, they drowned. All five passengers took a risk by not wearing their PFDs, and three victims beat the odds. The drowning victims will never have an opportunity to learn from their mistakes.

Moral of the Stories

These incidents are merely "real-life" examples. Even the best swimmers can't keep themselves afloat if they're unconscious. Wearing a PFD might keep you right-side-up one day when you least expect a dip in the water. Although the law does not make you wear a PFD while on board most boats, Jeremy, Brent, Danielle, Lori and the families of the two drowning victims highly recommend it. The Virginia Department of Game and Inland Fisheries *strongly* urges you to wear your personal flotation device at all times while on a boat. Wearing your PFD should be as automatic as putting on your seatbelt; the boat doesn't move unless the PFDs are properly fastened. If worn, PFDs will save lives.

Personal Flotation Device Regulations

- Virginia's boating laws require that all operators and passengers of personal watercraft (Jet Skis, Sea-Doos, etc.) must wear a PFD (U.S. Coast Guard Approved Type I, II, III, or V). However, the Virginia Department of Game and Inland Fisheries strongly recommends wearing a U. S. Coast Guard approved Type III PFD for high-impact when operating a personal watercraft.

- Operators of smaller boats (under 16 feet in length), all canoes, and all kayaks are required to have one wearable PFD (U.S. Coast Guard Approved Type I, II, III, or V) on board for each passenger.

- For boats 16 feet and longer in length (except a canoe or kayak), there must be one Type IV PFD (Throwable Device) on board, as well as a wearable PFD for each person (U.S. Coast Guard Approved Type I, II, III or V).

Anglers and waterfowl hunters should wear a PFD at all times.

Types of Personal Flotation Devices (PFDs)

Type I PFD
(Off-shore Life Jacket)
22 lbs. buoyancy
Used mainly in rough or remote water where rescue is not likely to be quick.
Advantages: Floats you the best and turns most unconscious victims face-up in the water; highly visible color.
Disadvantages: Cumbersome to wear; hot.

Type II PFD
(Near-shore Buoyant Vest)
15.5 lbs. buoyancy
Used in calm, inland water where rescue is relatively fast.
Advantages: Less bulky and more comfortable than Type I; will turn most wearers face-up in the water; several sizes to fit all wearers; highly visible color.
Disadvantages: Not good for long hours in the water; may not turn some unconscious victims face up in the water.

Type III PFD
(Flotation Aid)
15.5 lbs. buoyancy
Used for calm, inland water where there is a good chance for a quick rescue.
Advantages: Most comfortable for prolonged use; provide more flexibility for boating sports; available in many fashions, such as vest or jacket styles.
Disadvantages: Will not keep the head face-up; must tilt head straight up or slightly backwards while wearing; not good in rough water.

Type IV PFD
(Throwable Device)
(Cushions, Rings and Horseshoe Buoys)
Used in calm, inland water, mostly, but also can be helpful in rough waters.
Advantages: Easy to throw to someone in the water; if attached to a rope, the victim can be pulled in.
Disadvantages: Cannot use with unconscious victims or non-swimmers; not recommended to use for rescuing children; not good for prolonged periods in rough water.

Type V PFD
(Special Use Device)
Used for special conditions/sports
Advantages: Made especially for individual activities, including the styles of board sailing vests, deck suits, and work vests.
Disadvantages: All types are U.S. Coast Guard approved for specific activities *only*--check the labels for uses.

Type V PFD
(Hybrid Device)
(Must be worn to be included as a U.S. Coast Guard approved PFD)
Used for any water conditions.
Advantages: Not very bulky; comfortable to wear; high flotation when inflated.
Disadvantages: Must be activated to inflate for most wearers; requires wearer to blow-up inflation chamber for added buoyancy—cannot support some unconscious victims prior to additional activated inflation.

Keeping Your PFD in Good Condition

Make sure your PFD fits you. Your PFD shouldn't come up over your head when you lift your arms up in the water.

Store your PFD in a safe place where it will not get crushed. Using PFDs as cushions, kneeling pads or bumpers will decrease their buoyancy life.

Once wet, allow your PFD to dry thoroughly. Do not dry your PFD over a direct heat source, such as a

heater or radiator—direct heat breaks down the fibers. Store your PFD in a well-ventilated area to avoid mildew.

Take your PFDs with you when you leave your boat for extended periods of time. Exposure to heat and dampness are not good for PFDs. In addition, boats are not very secure; the PFDs might be missing when you return.

Check the buoyancy of all PFDs annually by wearing them in the water. Inspect them for holes, torn straps or any other damage. Replace/repair any that are damaged.

Write your name, boat registration number and phone number on your PFD with a permanent marker to identify it as yours. You will be more likely to keep your PFD on your boat. □

The Top Ten Reasons Why You Should Meticulously Care for Your PFDs

1. To save your life or someone else's life.

2. To teach your children safe boating practices.

3. To be able to float on your back without holding your breath.

4. To pass your U.S. Coast Guard Auxiliary boat inspection.

5. To give your PFDs to your grandchildren as family heirlooms.

6. To save time shopping for new PFDs each year.

7. To have an excuse to buy a different toy for your dog who loves to play PFD tug-of-war.

8. To LOOK like you know what you're doing.

9. To impress your marina neighbors, the Joneses.

10. To successfully complement your new swimming attire.

LIFE JACKETS. They Float. You Don't.

A public safety message from the National Safe Boating Council and the U.S. Coast Guard.

Produced under a grant from the Aquatic Resources (Wallop/Breaux) Trust Fund Administered by the U S Coast Guard

Boating Without Alcohol... Just For the Fun of It!

Picture these scenarios . . .

The sun is beating down. A warm breeze is blowing. As Pete cruises down the lake, the water splashes up on his arm. He can smell the fresh, country air. What a great day to be boating! Wouldn't a frosty margarita go down smoothly right about now?

It's a warm, fall day. The scent of pine is in the air. Mary Jean is feeling kind of lazy as she casts her line into the cool, still water. The fish have been biting just as lazily as she feels. What a wonderful way to relax! The day would be complete if only she had a nice, cold beer.

It's a day with Ed's crazy friends. The gang is racing jet skis all over the lake, repeatedly wiping out and climbing back on to ride again. They are jumping the waves, feeling the spray of the water, sensing the wind in their hair, screaming with laughter and having a blast! Summer just isn't long enough! Everyone would really get crazy if they had their liquor flasks with them!

A party on the water can be great fun, with alcohol it can be deadly.

Each boating scenario is fictitious, yet very probable in today's social drinking world. However, boating and drinking just don't mix. One ounce of alcohol (*one* 12 ounce beer, *one* 6 ounce glass of wine or *one* shot of 80 proof liquor) is about all the body can metabolize per hour, depending on the type of beverage and the physical characteristics of the individual (weight, height, fatigue level, chemical balance, metabolic rate, previous food consumption, etc.). Someone who is legally drunk (.08 percent of body fluid alcohol content for boating in Virginia) will take approximately seven hours to become sober. Time is the only factor that can sober-up someone; not coffee or cold showers. Alcohol is not digested like food. It is absorbed immediately through the stomach and intestinal walls, equally distributed throughout the body via the bloodstream. Once it reaches the brain, alcohol will affect reasoning, judgment, balance, and vision.

Vision provides about 90 percent of the sensory information that is essential for operating a boat. Boat operators must constantly scan the water to avoid collisions with other vessels approaching from any direction. Drinking alcohol will cause vision to blur and increase the likelihood of tunnel vision, or the loss of peripheral vision. Alcohol causes blurred vision by impeding the muscles that focus both eyes simultaneously on the same object. The brain might also curtail the function of one eye, resulting in loss of depth perception. As one drinks alcohol, the pupil's ability to control the amount of light entering the eye decreases. Eliminating light is a major hindrance after dark. Color recognition becomes difficult, especially at night when boaters rely on navigation lights for direction. Whether it's daytime or nighttime, clear vision is reduced greatly with the use of alcohol.

Balance is also affected by alcohol. Floating boats are not station-

ary; there is constant movement on the water. Add the instability of an inebriated boater to the moving surface of the boat, and the possibility of falling overboard increases considerably. Many people who have had too much to drink fall overboard due to their loss of balance. Most victims won't hit their heads or knock themselves out. Instead, their confusion allows them to mistake the bottom for the surface of the water and actually swim down to the bottom where they drown. This is when wearing personal flotation devices (PFDs) will save lives. Even if victims maintain their orientation after falling overboard, immersion in cold water may lead to hypothermia. Alcohol in the body brings the blood vessels to the surface of the skin, allowing heat to escape the body at a faster rate. Being in the water will disperse body heat even more quickly and will contribute to the rapid onset of hypothermia. Hypothermia will eventually stop muscles from functioning, including the heart and diaphragm. Even though losing one's balance may not lead directly to a fatality, the effects of disorientation or hypothermia will most likely cause death.

The main reason for not mixing boating with alcohol is that alcohol influences a person's judgment and reasoning. Alcohol inflates a person's confidence level, making one take risky chances she/he wouldn't ordinarily take, including unsafe feats in a boat. Alcohol dulls a person's ability to make sound judgments, making the person oblivious to potential hazards. Alcohol slows reaction time due to the inability to process information quickly and loss of muscle coordination. There are times when boat operators must make split-second decisions, particularly while operating a boat in congested areas. A drunk operator will not be able to anticipate danger, much less make a rational decision and physically respond. Conscientiously watching the waterway ahead, making quick decisions and carefully handling the boat are essential not only to the safety of the passengers, but to other boaters, any people on the surrounding shores, and the operator.

Being an outdoor sport, boating has many stress factors which boat operators must take into consideration. These stressors include excessive noise, wind, sun glare, heat, vibration, motion, rain, waves, tides, currents, floating debris, shallow water, fatigue and at night—darkness adaptation. Boating stress will contribute to slower reaction time and increased fatigue without alcohol. The combination of alcohol consumption and any one of these stressors could be deadly. If you must drink alcohol, *always* have a designated boat operator when you want to drink and cruise. And please...wear your PFD. But why not go boating *without* alcohol...just for the fun of it? ☐

Alcohol is not what makes water sports fun.

Personal responsibility is what riding a personal watercraft is all about. Operators must use mature judgement and be at least 14 years old to enjoy a safe and thrilling ride.

The True Meaning of PWC

Post War Coalition? Polar Wildlife Commission? Packaged With Care? Polka With Coordination? Pie With Cream? Or maybe, Poor Weather Climate. Just *what* does PWC stand for?

In boating circles, PWC stands for personal (P) watercraft (WC), with an emphasis on the *personal*. Personal watercraft are the U.S. Coast Guard Class A boats (smaller that 16 feet) that are maneuvered by jet pumps, not propellers. PWCs are operated by one person, but often have seating space for others. Some models hold three riders (including the operator) and tow a water skier. The newest models are plug-in craft which have separate hull pieces that attach to the PWCs to carry additional riders or gear. You may have seen some PWCs last summer scooting around the rivers, lakes, reservoirs, and ocean areas. Perhaps you even purchased one "for the kids" you told your spouse, as PWCs made-up over 35 percent of the increase in registered boats.

PWCs are a great deal of fun because of their easy maneuverability and access to shallow water areas. They resemble a type of water motorcycle, and like motorcycles, *PWCs can be dangerous if not operated responsibly.* The potential for danger is illustrated by the 1995 boating accidents in Virginia that involved PWCs, which increased 27 percent from 1994. And, although PWCs comprise just under 5 percent of all registered boats, they were involved in about one-third of all boating accidents in 1995. As the fastest growing activity in boating, both in Virginia and the nation, personal watercraft operators need to become more safety conscious through personal re-

sponsibility. The word "personal" in personal watercraft is focused on the operator's independent decision to act responsibly.

With the decision to operate the PWC responsibly, there are several essential pieces of information you should remember to keep your ride safe. Some of the information deals strictly with the boat's mechanics. Other information is common sense, and the rest of the details include the laws. First we'll take a look at operation logistics.

For a number of reasons, personal watercraft can be somewhat safer than other motorboats. I use "somewhat safer" because all PWC operators and passengers are required to *wear* a U.S. Coast Guard approved personal flotation device (PFD). Other boat operators and passengers are only required to have wearable PFDs on board, but are not required to wear them. The boating education program of the Virginia Department of Game and Inland Fisheries urges operators to use the high-impact PFDs with personal watercraft. The high-impact styles have more straps on the PFD vest to hold it on during a sudden spill into the water at high speeds. Also, the jet-drive propulsion is safer than a propeller motor. The propulsion allows the boats to be operated in more shallow water than traditional boats, and will not cut anything in the water. However, the jet drive propulsion will attract loose items and pull them through the jet drive much like a vacuum. Items that are too large to enter the waterflow area will be held against the opening of the boat until the propulsion is turned off. Common sense tells us to keep the area near the jet intake free of obstructions. Obstructions might include sand, stones, seaweed, or such things as clothing, straps, fishing line, feet, hands, hair, etc. The jet intake is powerful and will suck anything into its impeller, either damaging the pump or worse, dragging someone behind the PWC. Most importantly, PWC operators must keep their craft completely away from swimmers—100 feet or more is an appropriate distance. Safe PWC operation requires quick and responsible decisions based on mature judgment and the surroundings.

Another part of the PWC that simultaneously provides advantages and disadvantages to the operator is the steering. Personal watercraft are highly maneuverable which makes them so appealing to ride. An operator can turn quickly with a slight movement of the throttle, making the ride more exciting. At the same time, the throttle can be a hindrance. For instance, steering control is lost when the throttle is released or when the engine is turned off (to stop). This is extremely important to remember when trying to maneuver around an obstacle in the water. It is imperative to keep the engine running if you

Personal watercraft (PWC) are enjoyed by people of all ages and interests.

need to turn, even slightly. Without responsible operators who understand the handling of their PWC, collisions with docks, swimmers and other boats would be commonplace.

You may be operating a PWC with a lanyard cut-off switch which is attached to the PWC on one end and to yourself on the other end. Attaching it to yourself and the PWC is a legal requirement for operation. All recent models have lanyard cut-off switches, and, with this switch the engine will stop if you fall off of the craft. As a PWC operator you will be riding on the hull of the boat with no gunwales to hold you on. Because of this, you are more likely to fall overboard. Taking sharp turns at fast speeds will tilt the PWC and possibly dump you off. Falling off of the PWC will cause the lanyard cut-off switch to disconnect from either end, stopping the PWC and allowing you to climb back on again. This is a great built-in safety feature. Hopefully, by using good, boat-safety judgment and slowing your speed to turn, you can avoid taking advantage of this feature.

Although lack of knowledge about how a PWC operates contributes to some PWC accidents, most accidents are caused by the operator's inexperience, inattention or failure to look out for hazards, swimmers or other boaters. Operators should take this responsibility *personally* by challenging themselves to learn as much as possible about their craft and staying alert during operation. They should continuously scan the water, especially to check the area behind their PWC before making any turns. In combination with general boating stressors (wind, sun glare, heat, vibration, etc.), the operator's tense eye muscles and eye fatigue will contribute to the development of temporary tunnel vision. This is when the operator stares straight ahead in a trance, without looking to the periphery for approaching boats or obstacles. Shorter rides with frequent rests will help alleviate the tunnel vision symptoms. Again, it's the operator's responsibility to know when to call it a day.

Excessive speed caused or contributed to several accidents last year. Manufacturers are making PWCs that can reach speeds of 40-65 MPH. Operators should keep their speed under control and not try to test the limit. Traveling at faster speeds amplifies everything, including tunnel vision, the potential for injury and less reaction time. Falling off a fast-moving PWC and hitting the water is like falling out of a two- or three-story window. You will most likely break a bone or two. Commit yourself to exercise caution and only travel in areas free of hazards and at speeds that keep *you* in control. Some localities may post speed requirements, such as "no wake" zones, where creating any wake could be damaging to either

property or people. Please learn the local rules and keep your speed under control.

Every operator should have both the physical capability and the mature judgment needed to operate the watercraft safely. Mature judgment comes with experience and age. For most operators, the temptation to jump wakes or sneak between boats is difficult to resist. The operator with mature judgment will recognize these situations as extremely dangerous. Besides not knowing which direction the other operator will decide to go, large ships and barges will not be able to stop quickly. Remember, boats don't have brakes. Never jump wakes, and never cut in front of another boat. Being responsible means staying alert, making safety-conscious decisions and operating the PWC defensively. It's better to be a safe operator who is alive, than to regret your misjudgment after an accident, an injury, or worse.

Keeping safety a priority will prevent most PWC accidents. To ensure other safe practices, Virginia has five specific laws for personal watercraft operation. These laws are enforced by our Virginia Game Wardens who are trained in boating safety. Listed below are the five specific PWC laws.

- A person under the age of 14 may not operate a personal watercraft, nor may a person knowingly allow a person under the age of 14 to operate a personal watercraft.
- It is unlawful to operate a personal watercraft unless the operator and each rider is wearing a Type I, II, III or V (Hybrid) U.S. Coast Guard approved personal flotation device. (The Department of Game and Inland Fisheries strongly recommends wearing a Type III, high-impact PFD High-impact PFDs have more straps and are more likely to stay on the body when entering the water at high speeds.)
- The operator must attach the lanyard to her/his person, clothing or personal flotation device, if the personal watercraft is equipped with a lanyard-type engine cut-off switch.
- No person shall operate a personal watercraft after sunset or before sunrise.
- No person may operate a personal watercraft while carrying passengers in excess of the number for which the craft was designed by the manufacturer.

Anyone who can reach the throttle, such as children *under* 14 years of age, may seem physically able to operate a personal watercraft. But, the law states that operators *must* be 14 years old or older to operate a PWC. These operators, whether 14 or 40, are expected to make wise decisions, for injuries will only be avoided when the operator is educated about the craft, knows the rules of the water and has the ability to make safe decisions based on all present variables, past experience and consideration of possible consequences. The Department of Game and Inland Fisheries encourages all potential operators to take a safe boating course prior to independent operation, especially those with limited boating experience. Safe operation of a PWC must be a conscious decision after learning the facts. The true meaning of PWC is *personal responsibility*. Help make 1996 a personal-watercraft-safe year by not being a part of the accident or fatality picture. Be Responsible. Be Safe. Have Fun! Or, more appropriately, to have fun you must act responsibly and be safe. □

Turning on a PWC can be tricky at high speeds.

Aids to Navigation

Both Federal and state waterways have separate marking systems with various uniform symbols. Waterway markers are distinguished by color, shape and patterns. Some markers may be used to mark safe channels or hazards while other markers are used as regulation signs. On state waters (inland), boaters should stay between the red and green buoys which mark the outer edges of the channel. Regulatory markers are generally orange geometric shapes on white backgrounds with black lettering. These markers warn of restricted or dangerous areas, list necessary information or explain speed limits. Sometimes buoys are not found at their charted location because they have drifted slightly. Storms, tides, currents or impact may cause the markers to move. Always give a wide berth to any markers as they might be close to the danger which they mark. Listed below are some of the state waterway markers used by all state waterways throughout Virginia and the country.

Regulatory Markers

Orange, Rectangular Markers With Diamond Shaped Symbols mean danger; keep out!

Orange, Rectangular Markers With Circle Shaped Symbols mean caution; it is a controlled area. Specific information may be inside circle.

Orange, Rectangular Markers With Square Shaped Symbols mean information; gives directions, distances, places, food, repairs, supplies and other non-regulatory messages.

Red and White Vertically-Striped, Can-Shaped Buoys are telling you NOT to pass between the buoy and the shore; there is some obstruction in the way.

*Top left: Slow No Wake (an example of an orange, rectangular marker with circle shaped symbol); **Top right:** Stationery Red Channel Marker (keep marker on your right); **Center:** Slow No Wake; **Bottom right:** Green Channel Marker (keep marker on your left).*

Channel Markers

Channel markers mark the outer edges of the channel so that you may stay between the green and red markers for safe passage.

Green Channel Markers are can-shaped, odd-numbered, and tell you to keep the green buoys on your left when going upstream or returning from the ocean.

Red Channel Markers are cone-shaped, even-numbered and remind you to keep the red buoys on your right when going upstream or returning from the ocean. (Red-Right-Returning)

Mooring Buoys are white with a reflectorized light blue band (horizontal stripe) and are used for boats to tie up to.

Red Flags With a White Diagonal Stripe and Light Blue With White Vertical Stripe (Alpha) Flags are scuba diving flags used to alert other boaters that divers may be in the water.

Basic Boating Equipment Requirements in Virginia

Items	Boats Under 16 Feet	16 to Less Than 26 Feet	26 to Less Than 40 Feet	40 to 65 Feet
Personal Flotation Devices	For each person on board the boat or being towed on water skis, etc., there *must* be one U.S. Coast Guard (USCG) approved Type I, II, III, or V PFD. Type V Hybrid PFDs *must* be worn at all times. Type V Special Use PFDs must be USCG approved for the same activity in which the boat is being used. Boats 16 feet or over in length must have one throwable Type IV PFD on board. All PFDs must be readily available, in serviceable condition and of proper size.			
Fire Extinguishers A fixed, fire extinguishing system installed in machinery spaces replaces one approved B-1 type portable fire extinguisher.	One B-1 type USCG approved hand portable fire extinguisher required on all inboards and all outboards under 26 feet with any of the following: - closed compartment under thwarts and seats wherein portable fuel tanks may be stored; - double bottoms not sealed to the hull or which are not completely filled with flotation material - closed living spaces; - closed stowage compartment in which combustible or flammable materials are stowed; and / or - permanently installed fuel tanks.		Two B-1 type USCG approved portable fire extinguishers or One B-2 type USCG approved fire extinguisher.	Three or more B-1 type USCG approved portable fire extinguishers or One or more B-1 type *and* one B-2 type USCG approved fire extinguishers.
Visual Distress Signals (Applies to all coastal water and those rivers two miles or more wide at the mouth and up to the first point the river narrows to less than two miles.)	When operating between sunset and sunrise, you must have on board USCG approved visual distress signals suitable for night use.	Must have on board USCG approved visual distress signals for day and night use. This could include 3 specifically for day use and 3 specifically for night use or 3 that are a combination day / night use. For pyrotechnic devices, this includes handheld or aerial red flares, floating or handheld orange smoke, and launchers for aerial meteors or parachute flares. Visual distress devices must be in serviceable condition with active dates and stowed within reach. Manually propelled sailboats less than 26 ft. and other manually propelled boats are required to carry only night signals.		
Bell, Whistle	Any boat less than 39.4 ft. must carry an effective, sound-producing device to comply with navigation rules requiring sound signals to be made under certain circumstances.		Vessels between 39.4 ft. and 65.6 ft. must carry both a bell and a whistle. The opening of the bell should be at least 7.87 inches in diameter. The sound of the whistle must be audible for ½ nautical mile.	
Ventilation (Boats built before August 1, 1980)	For boats built after April 25, 1940 and before August 1, 1980 (with engines using gasoline as fuel and other fuels having a flashpoint of 110 degrees F. or less), the bilges of each closed engine and fuel compartment must have at least 2 ventilation ducts fitted with cowls or their equivalent to properly ventilate the fuel area. There must be at least one exhaust duct installed so as to extend to the lower portion of the bilge and at least one intake duct installed so as to extend to a point at least midway to the bilge or at least below the level of the carburetor air intake.			
Ventilation (Boats built after July 31, 1980)	No person may operate a boat built after July 31, 1980 that has a gasoline engine for electrical generation, mechanical power or propulsion, unless it is equipped with an operable ventilation system that meets the requirements of 33 CFR 183.610 and 183.620.			
Backfire Flame Arrestor	For inboard and combination inboard / outboard gasoline engines installed after April 25, 1940, an approved backfire flame arrestor must be installed on each carburetor. The carburetor device must be marked to show compliance with SAEJ-1928 or UL 1111 Standards.			

A more thorough discussion of Virginia requirements may be found in the *Virginia Motorboat Owner's Guide.*

Virginia Department of Game and Inland Fisheries

Bill Lea

Casual Dress Nymph

Nymphing for Smallmouths

by Harry Murray

A fishing lesson from one of Virginia's premier fly-fishing instructors.

Fishing nymphs for smallmouth bass in streams will enable you to consistently take more and larger fish under adverse conditions than any technique I know. This is because, when using the correct fly patterns and the appropriate tactics, you are able to realistically drift imitations of the bass'es natural foods to them.

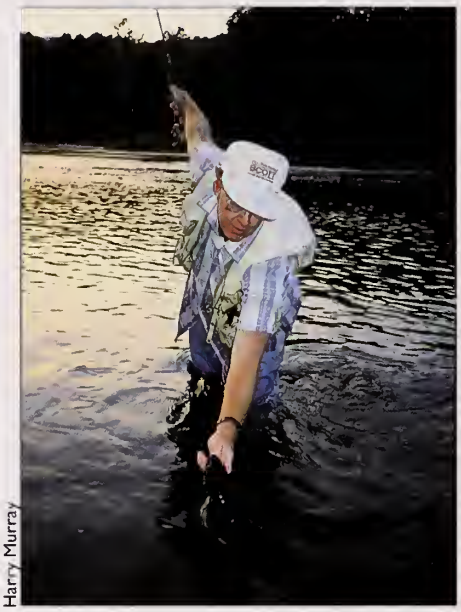
In order to take full advantage of this approach, lets examine some of the natural nymphs that smallmouth eat, the types of water where they are found, the fly patterns that mimic them and the most effective tactics for fishing them.

Murray's Hellgrammite

Dragonfly nymphs can be found in great numbers in the, slow sections of most streams, and they are a favorite bass food. These are robust, mean looking nymphs which vary from an inch to an inch and a half long in shades of olive, gray and brown. One of the most effective flies I've found is the Casual Dress Nymph in sizes 6 and 8.

The most productive dragonfly nymph fishing technique I know is one which Charlie Brooks taught me as we fished together on many of the large western trout streams. This is a logical system for a new nymph fisherman to start with, for not only does it take sizeable fish, but it is very easy to master. It goes like this. Wading downstream, one casts almost straight across stream and pauses for a few moments for the nymph to sink. Once the fly is close to the stream bottom a slow tugging action is imparted with the line hand which moves the nymph about two inches every ten seconds. If you are in doubt about the rate of your retrieve—slow down. There are two good reasons for this; first, many large bass react better to a very slow fly action and second, a fast retrieve may pull the nymph further up off the bottom than is desirable. Since most dragonfly nymph water is fairly slow, a floating fly line will permit my weighted dragonfly pattern to reach the stream bottom if a leader about nine feet long is used. However, in the early part of the season when the streams are high I often use a fairly fast sinking tip fly line such as the Scientific Anglers sinking tip III. I prefer using a leader six feet long with these lines. Longer leaders negate the sinking quality of the line and fail to pull the nymph down to the stream bottom.

Damselfly nymphs live in some of the same areas which hold dragonfly nymphs but I find the greatest concentrations in and around aquatic grass beds. Many damselfly nymphs reach an inch and a half long with shades of olive and brown predominating. Although these nymphs are more slender and delicate than the dragonfly nymphs the bass get excited by them due to their great concentrations and the longevity of their hatching period. The Marabou Damselfly Nymphs and Dave's Damselfly Nymphs sizes 8 and 10 in olive and brown are consistent producers.


Harry Murray

My favorite way to fish damselfly nymphs is to wade downstream parallel to the aquatic grass beds and about fifty feet out in the river from them I cast my nymph down and across stream, delivering it tight against the grass. Often the strike will come within the first several seconds so I find it imperative to quickly get the fly line over the first finger of my rod hand in order to set the hook quickly. If the strike does not come momentarily I slowly twitch the nymph out away from the grass with the line hand.

When using the down and across stream retrieve which is so effective with dragonfly nymphs and damselfly nymphs, it is very important to keep the rod tip pointed at the spot where the fly line leaves the water. The main advantage being that this enables one to have a tight line between the line hand and the nymph which aids greatly in strike detection. The slightest bump by a smallmouth is quickly telegraphed through this tight line. Another advantage of keeping the rod tip pointed at the line-water entry point is the help it gives in setting the hook. Anglers in my fly fishing schools are amazed at the increased percentage of hookups they achieve by being attentive to this one aspect.

Dave's Damselfly Nymph

Hellgrammites, the larva of the dobsonflies, are extremely important in most smallmouth streams. They are present in great concentrations, their three-year growth cycles assures they will be there at all times, but best of all, reaching four inches long, they provide a mouthful for the bass. The Murray's Hellgrammite in sizes 4, 6, and 8 is the most effective pattern I've found to match this popular bass food.

Since the real hellgrammites are exceptionally strong swimmers, you can take many bass by fishing the Murray's Hellgrammite down and across stream in much the same manner described for the dragonfly and damselfly patterns. However, my favorite tactic is to fish them upstream in the classic "dead drift" manner. The advantage of this method is that you are able to drift the fly naturally to the bass right along the stream bottom.

This bottom-bouncing presentation is best achieved by casting straight upstream or up and across stream at only a very slight angle. Since "dead drift nymphing" is at its best in heavy water, I find I get my best results with casts of 20 to 30 feet. Longer casts allow too many crossing currents to play upon the line and leader preventing the hellgrammite from reaching the stream bottom as well as masking the strike when it occurs.

Strike detection is an ever-present problem confronting all anglers who practice "dead drift nymphing" and thus deserves special attention in tackle preparation and technique refinement. A comment I

often hear from my students is, "Oh, I felt the strike but I missed him." That is exactly right; if you rely on feeling the strike when fishing nymphs with a dead drift you will miss most of them. You must see that strike! In order to achieve this I like to use a leader constructed with five feet of fluorescent mono in the butt section with three Scientific Anglers indicators spaced along its length. When fishing, I carefully watch the closest indicator to the fly I can see. If my nymph is extremely deep I watch the fluorescent butt section of the leader. At the slightest hint of a take, I strike firmly with both the rod and my line hand. Since bass have a tough mouth and we're fishing large nymphs it is important to get your arm involved in the strike in order to sink the hook firmly to the bend. I also find barbless hooks a great help in this aspect.

Reading the water is an extremely important part of dead drift nymphing. Since you are attempting to present your fly naturally to the bass holding close to the stream bottom it is helpful to identify these feeding stations as accurately as possible. Smallmouth select these feeding stations based primarily on two factors. They like to lie fairly close to major current lines but they like to have some object block the main force of the flow. Good examples are protected crevasses beside boulders in a strong run or recesses in front of ledges which momentarily dam a heavy flow. Having identified these feeding stations, one must next determine where to cast the nymph in order for it to drift naturally to the bass *on his level*. Keep in mind that many anglers fail to cast far enough upstream in order for the nymph to have time to sink to the bottom. After determining the proper spot to drop the nymphs the final and most critical aspect of reading the water must be determined. That is your casting position. True, where you stand will determine the efficiency with which you can put this dead drifting game together. The most common mistake is trying to fish too long a line across too many currents; this robs us of getting our flies to the bottom in most cases, and even if we get them there we are seldom aware of the strike. Solution: fish a short line and wade cautiously.

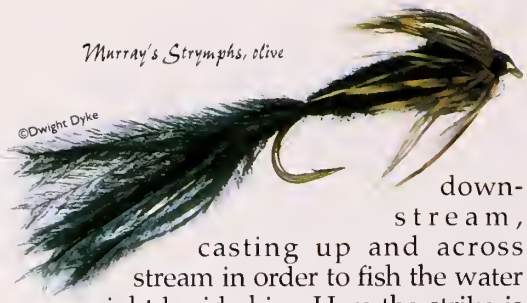
Obviously upstream dead drift nymph fishing requires that we be able to wade the water below where we plan to fish. So, how do we effectively fish heavy water which is too deep to wade?

Let's suppose you wade into the side of a pool 30 feet below a heavy riffle. The water before you looks excellent for smallmouth; it has a strong current flowing around bushel basket-sized rocks which could hold and feed some of the largest bass in the river. Unfortunately it is five to six feet deep, making it too deep to wade. Having fished similar looking water previously with down and across stream tactics using weighted flies, you found you were unable to get your flies down close to the stream bottom.

The "swing nymphing" tactic is an excellent method to fish this type water. Not only is it extremely effective, but it is easy to learn.

Let's make some clear distinctions between "dead drift nymphing" and "swing nymphing." With the former method one is wading upstream, casting upstream and fishing the water upstream of his casting positions The strike is detected by *seeing* the take on the indicator system. With the "swing nymphing" technique, one is wading

Opposite page: *Author Harry Murray fishing for smallmouth bass.*
Left: *Nymphing can be a highly effective way to lure lunker smallmouth.*
Photo by M.L. Giovannetti



Murray's Strymphs, olive

downstream, casting up and across stream in order to fish the water right beside him. Here the strike is detected by feeling the take.

Okay, back to our deep fast run below the heavy riffle. Ones casting position is extremely important with the "swing nymphing" method for both controlling the drift of the nymph and detecting the strike. Ideally, I like to position myself so the productive-looking water is from 10 to 30 feet straight out in the river from me.

The first cast is made up and across stream at about a 45 degree angle so the nymph is dropped about 15 feet upstream and about 10 feet out. The nymph is allowed to sink to the stream bottom by retrieving absolutely no line until the fly has drifted about 10 feet. Only now is the excess slack line retrieved with the line hand. Simultaneously the rod is punched up and out, high over the water in order to negate the heavy current between you and the nymph. Care must be taken to prevent pulling the nymph up off the bottom. However, it is important to maintain a gradual swinging motion with the rod ahead of the nymph. This way one can keep a tight line from the line hand all the way down to the nymph, facilitating instant strike detection. If you even think you feel a bump it is imperative to quickly set the hook firmly with the line hand as well as the rod. Remember, this nymph is on the bottom in deep water and you must telegraph your strike all the way down the line in order to hook the bass.

With each successive cast I lengthen my line several feet which enables me to drift my nymph through water a little further out. I have found that trying to fish heavy runs more than 30 feet out from my casting position lacks efficiency in strike detection. If the water out there looks exceptionally good I may try to wade out a little closer to it and try to cover it with the same technique. After fishing all of the water I can efficiently cover, I wade downstream about 10 feet and repeat this bottom covering process. As you can see, by gradually working your way down the river "swing nymphing" enables you to effectively cover almost every square foot of water in these heavy runs.

Some of the most productive flies to use in these areas include the Casual Dress, Strymphs and Murray's Hellgrammites all in sizes 4 through 8.

Most serious smallmouth anglers prefer fly rods which are about nine feet long that balance with a number seven or eight line for nymph fishing. Bass bug tapered lines are ideal for this since their compact belly areas simplify the short punching cast used. Floating lines are definitely used for most of this fishing with a moderately fast sinking tip line coming into its own when fishing down and across stream where longer casts are used. I prefer nine foot leaders with the floating lines and always use the fluorescent butt style described earlier with several Scientific Anglers indicators attached. Six foot leaders are better with sinking tip lines so you can hold the flies closer to the stream bottom. Don't make the mistake of using too fine a leader tippet. I hardly ever go finer than 3X when smallmouth nymphing and actually prefer to stop as 2X. Going finer will not get you any more takes, but it can cause you to break off some large fish on the strike. Remember, big hooks and tough mouthed fish.

By selecting your nymph patterns to match the natural types the bass know in specific stretches of the rivers and carefully fishing them with the appropriate technique, you will open a whole new world of smallmouth angling. When fished correctly the smallmouth nymphs will seldom let you down on Virginia's rivers. ☐

Harry Murray is a freelance writer who teaches fishing and fly tying in Edinburg, Virginia.

Serious smallmouth anglers usually prefer nine-foot rods that balance with number seven or eight line for nymph fishing.

Wild About Turkeys

by Gary Norman,
Forest Game Bird Project Leader.

The conservation program of the wild turkey in Virginia is truly one of our greatest wildlife management successes. The wild turkey now ranges throughout Virginia as a result of the Department's trap and transfer program initiated in 1954. More recently the Department recognized the need for information on the factors controlling the growth of our wild turkey population. An ambitious research project was initiated in 1989 to address this need. The project was recently completed and as a result of the findings of the project, the length of our fall season was reduced to promote better growth in our wild turkey population. The future holds promise for better quality hunting opportunities as well as more non-consumptive benefits from the expected higher wild turkey populations across the Commonwealth.

The scope of the research work was extensive. We trapped 678 wild turkeys in the 5-year project and monitored the survival and reproductive success of 427 hens using radio-telemetry equipment. The work was fun, trying, tedious, difficult, long, and hard, but, always interesting. We learned about aspects of predation, poaching, movements, and reproduction that surprised even our veteran field staff.

This work could not have been accomplished without the cooperative effort by private, state, and federal conservation organizations as well as significant help from interested volunteers and landowners. Many dedicated people need to be identified for their extra effort and dedication that made the project a success.

Funding for the work was provided primarily by the Department of Game and Inland Fisheries. The National Wild Turkey Federation (NWTF) provided $106,000 for project expenses. Dr. James Earl Kennamer directs the NWTF National Grant Program that provided these funds. The Virginia State Chapter of the National Wild Turkey Federation also provided financial and logistical support throughout the project. Federal Aid monies were made available when we combined our project with a similar project in West Virginia lead by Jim Pack and Curtis Taylor. Mr. John Organ, Federal Aid Coordinator for the U.S. Fish and Wildlife Services' Pittman-Robertson program, served as the catalyst and coordinator of these federal funds. Federal Aid monies ($74,550) were used to fund the joint analyses of the projects data by Dr. Ken Pollock and Russell Alpizar at North Carolina State University. Other groups provided donations for equipment and support including the Covington Izaak Walton League, the Wild Turkey Landowners Association, and the Boiling Springs Rod and Gun Club.

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Turkey project leader Gary Norman with his radio-telemetry equipment.

Trapping and monitoring the wild turkeys was accomplished by a group of very dedicated field staff. The success of the project relied on our ability to capture approximately 100 hens per year. In years with good mast crops this was next-to-impossible. Few things are as exciting as firing a rocket net over a flock of turkeys. But, for every day things went right, there were many more where success eluded us such as when the birds or the weather didn't cooperate, a rocket charge failed, or the net flew too high to name a few. Trapping days were long, daylight to dark. Optimism was important when climbing into our 4' tall camouflage dome tents for a 2nd and 3rd cold January day when the birds weren't cooperating. Not only was the project staff expected to catch birds, but they were further expected to follow the birds throughout the year, determine what caused their death, when they died, determine if they nested, call them up and count their poults in the summer, and keep good records of everything. We tracked at night to determine when hens were nesting which required a significant schedule adjustment for the project staff during the spring. The Department would

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Biologists Gary Norman (left) and Larry Crane holding captured wild turkeys.

like to salute the following project staff for their exceptional efforts:

Mike Abruzzino
Bill Bassinger
Byran Burhans
Oliver Burkholder
Tom Cramer
Larry Crane
Fred Frenzel
Marvin Gautier
Ed Haverlack
Joe Huffer
Ron Hughes
Bill Keffer
Jimmy Phillips
John Pound
Ben Powell
Rodger Propst
Kenny Sexton
Ken Shugart
Gene Sours
Clarence Stebar
Roy Swartz
Tim Wilson
Louis Wood.

Additionally, many others made significant contributions to various phases of trapping, data collection, data entry, and project management. This list includes the following individuals:

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Walt Hampton
Chris Hargrave
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Nelson Lafone
Robert Mace
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Milt McGrady
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Rod McClanahan
Leigh McDougal
Ken Parr
Brooks Powell
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Mary Quarles
Tanna Russell
Scott Slusser
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Betsy Stinson
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Allison Williams
Debi Wood
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The Department would also like to recognize the following landowners who allowed us to trap birds and to countless others who allowed us access to their property to track birds.

Avery Mill Hunt Club
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T.E. Petersen Chapter, NWTF
Brandon Plantation
Gerald Breeden
Wallace Byer
Dale Carter
David Clark
Buford Collins
Chip Coalter
Folly Farms
Dennis Fowler
Marvin Fridley
Mike Harris
Troy Harris
Ray Hundley
Richard Lawrence
Hollow Hill Farms
Marvin Lyons
Buddy Murray
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Westvaco, Inc.
David Wolfe.

David Steffen provided support in all phases of the project. His quantative expertise was an invaluable contribution to the data analysis and population modelling. I would also like to thank Bob Duncan, Bob Ellis, Bob Eriksen, and Jack Raybourne for their administrative support of this project. Mr. Dennis Martin spent countless hours searching for turkeys in the Department's plane piloted by either Roger Roberts or Don Dofflemeyer. Access to these services greatly increased our efficiency and findings. Coordination with the U.S. Forest Service was accomplished through Mr. John Bellemore. U.S. Forest Service staff on the Deerfield, Warm Springs, and New Castle Ranger Districts were particularly helpful.

Thanks are also due to all who contributed comments on project findings and regulation proposals at recent public meetings. Namely, Donald Allanson, John Byrne, Jim Clay, Gerald Duncan, Tom Evans, Bob Jenks, Jim Miller, J. Andrew Pauley, and Richard Pauley.

Last, but not least, I would like to thank my family and the families of all those people who contributed the extra time and effort that was necessary to make this project a success.

James River Days

The Focus of June Festivity

Combine fishing, boating, birding, batteau rides, rafting, canoeing, kayaking, tubing, photography, snorkeling, historical interpretation and more into an event and you've got the recipe for "James River Days."

"James River Days" is a calendar of cultural, recreational, historic and environmental education activities that take place during the month of June along the James River near Richmond. It was started by the James River Task Force to help people discover the variety of opportunities that await them on, and along, this spectacular resource. The event is coordinated by Chesterfield County Parks and Recreation Department. Individual activities are sponsored by a host of state, federal, county and city agencies as well as private organizations and businesses.

For information on James River Days activities call 804/751-INFO, ext. 457. □

Lee Walker

Ken Perry (right), Information Specialist with DGIF, crafts his hobby as a woodworker into building homes for many of Virginia's feathered friends. Bob Duncan, Director of DGIF Wildlife Division, shown here gladly accepts these 100 custom condos to be set up on the Department wildlife management areas.

ODYSSEY on the James River

Come Join Us on Mothers Day, May 12, 1996, for a Virginia River Adventure!

Tune in to your local Public Broadcasting Station, pull up a raft and share a ride down the James River. We'll look at animals that call this river home and meet some folks who live along the river and make their living from its flowing waters.

Look for
ODYSSEY ON THE JAMES RIVER
on one of these PBS stations on Sunday, May 12 at 5:00 P.M.

WCVE-TV 23	Richmond
WBRA-TV 15	Roanoke
WHRO-TV 15	Norfolk
WVPT-TV 51	Harrisonburg
WNVT-TV 53	Falls Church

Habitat

by Nancy Hugo

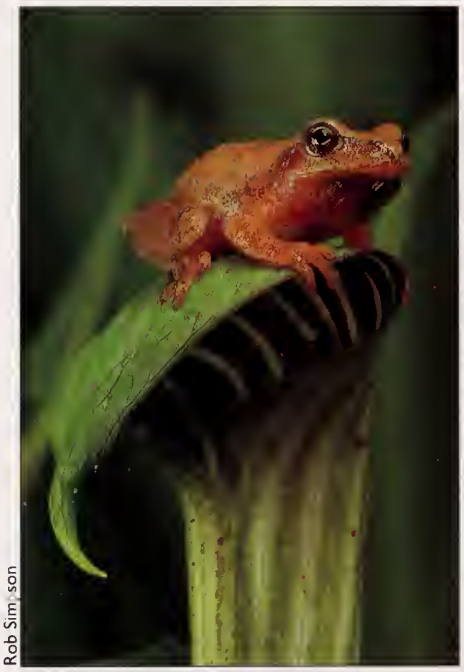
Jack-in-the-Pulpit

This clergyman preaches all over the state. According to the *Atlas of Virginia Flora*, Jack-in-the-Pulpit *(Arisaema triphyllum)* can be found growing in the wild in every Virginia county except Matthews and Northampton, and, who knows, it may have spread into those counties since the 1992 publication of the Atlas.

Where you'll find Jacks holding forth is in moist woods, along streambanks, and near swamps. Sometimes they are small (under a foot tall). "Quaint little preachers" is what naturalist Mrs. William Starr Dana called them. On the other hand, some Jacks grow almost three feet tall. I'll never forget proudly looking at a single 1 ½' Jack in my wildflower garden the morning before touring native plant gardens and natural areas near Manassas. Up there, Jacks were everywhere, gardeners were pulling them out like weeds, and a 2 ½' Jack was just an average Joe. I lost a little pride in my own preacher but gained greater respect for these plants as a group.

It's the unusual flower structure of this plant that has led to its ecclesiastical name. The pulpit is a leaf-like spathe that wraps around a central column (Jack, the preacher). Above this central column (spadix) the spathe folds over like a graceful hood suggesting the canopy over a pulpit. The ridged spathe is green to purplish-brown and is often marked with purple or white lines. (*Arisaema*, the plant's Latin name, means "bloody arum" and refers to this purple streaking.)

According to Mrs. Dana, people used to think the color of the spathe indicated the sex of the plant—males were said to be shielded by green hoods, females by purple hoods. But evidently it's a mistake to think you can judge the sex of a Jack by its color. The Jack's true flowers appear on the spadix, and sometimes a spadix will have both male and female flowers, sometimes one or the other. Botanist Marion Blois Lobstein says if the plant has stored enough energy, it will flower as a female (and produce berries), if it stores less energy, it will revert to male.



Rob Simpson

This jack-in-the-pulpit's visitor is a spring peeper, Hyla crucifer.

The plant has one or two long-stemmed leaves, each divided into three parts, and after the spathe withers, the plant produces tight clusters of berries that are at first green, then orange, and finally bright red in the fall. Both these leaves and berries are eaten to a limited extent by wildlife, particularly wild turkeys.

Dried or cooked, parts of the plant can be eaten by people, too. "Indian turnip," one of the plant's common names, alludes to the fact that American Indians ate the plant's thickened underground stems (corms). Unless they're properly prepared, however, these corms will teach you why Jack-in-the-Pulpit is sometimes called "memory plant." The plant contains crystals of calcium oxalate which can become embedded in the tissues of the mouth and create a burning sensation. Drying or boiling breaks calcium oxalate down, so American Indians boiled the plant's corms (and the plant's berries, which they ate, too) before ingesting them. Indians and European settlers also ground Jack-in-the-Pulpit corms for use as a pepper substitute.

Because it has such a distinctive shape and descriptive name, Jack-in-the-Pulpit is one of the easiest wildflowers to learn to identify. It's also easy to grow and makes a great plant to add to backyard habitats, schoolyards, and natural areas where children can learn to appreciate its unusual form. A perennial plant, it likes moist soil and shade. Plants can be grown from seed but they require special treatment, so it's really easier to buy plants from native plant nurseries. Sources are listed below. Even if you find a large colony, don't dig Jack-in-the-Pulpit from the wild. Removing native plants from the wild is a no-no, and stealing a preacher is surely a sin. ☐

Sources of Jack-in-the-Pulpit: We-Du Nurseries (704-738-8300) and Niche Gardens (919-967-0078).

Recipes

By Joan Cone

All Bass Are Delicious

We're all for conservation. Everyone wants to return bass to the water. Yet releasing every bass can be a mistake. Those that are badly hooked or dragged about on a stringer all day will probably die anyway. They will wobble off and expire, providing food for turtles and other scavengers.

Besides, bass are very good to eat. Largemouth, smallmouth, Kentucky and spotted bass all taste the same—delicious. Part of the fun of bass fishing comes with the wonderful meals that follow, made possible by your angling skill.

MENU

Quickly Sautéed Bass Fillets
Cheddar Baked Potato Slices
Summer Squash Amandine
Coffee Sponge Pie

Quickly Sautéed Bass Fillets

1 lemon, cut into 6 wedges
1 pound bass fillets, cut into 4 serving-size pieces
2 tablespoons flour
¼ teaspoon paprika
1 tablespoon olive or salad oil
Salt and pepper to taste.

Squeeze juice of 2 lemon wedges over both sides of bass fillets. Let stand 5 minutes. Lightly pat dry with paper toweling. On plate combine flour and paprika. Dip fillets in flour to coat lightly. In large nonstick skillet sprayed with no stick cooking spray, heat oil. Sauté fish over medium-high heat for 3 to 4 minutes on each side, or until fish is opaque and just flakes easily with a fork. Salt and pepper to taste. Garnish each serving with remaining lemon wedges. Makes 4 servings. *Note:* Serve with Light And Lemony Dill "Butter" if desired.

Light And Lemony Dill "Butter"

⅓ cup light margarine, softened
1 tablespoon finely chopped green onion
½ teaspoon dried dill weed
Grated peel of ½ lemon
⅛ teaspoon white pepper

In small bowl, combine all ingredients. Serve 1 to 2 teaspoons over each serving of bass fillets. Makes about ⅓ cup.

Cheddar Baked Potato Slices

1 can (10¾ ounces) Healthy Request Cream of Mushroom Soup
½ teaspoon paprika
¼ teaspoon pepper
4 medium baking potatoes, cut into ¼-inch slices
1 cup shredded Cheddar cheese

In small bowl, combine soup, paprika, and pepper. In greased 2-quart oblong baking dish, arrange potatoes in overlapping rows. Sprinkle with cheese; spoon soup mixture over cheese. Cover with foil; bake at 400° for 45 minutes. Uncover, bake 10 minutes or until potatoes are fork tender. Makes 6 servings.

Summer Squash Amandine

1 pound yellow summer squash or zucchini, cut in ¼-inch slices
½ cup diagonally sliced celery
2 tablespoons margarine or butter
4 green onions, cut in 1-inch pieces
Grated peel and juice of ½ lemon
2 tablespoons toasted, slivered almonds
½ teaspoon soy sauce
Salt to taste

In large skillet, sauté squash and celery over medium-high heat for 3 minutes. Add green onions. Cover and cook over low heat 3 minutes longer or until just tender. Add remaining ingredients; heat. Makes 4 to 6 servings.

Coffee Sponge Pie

1 tablespoon (1 package) unflavored gelatin
¼ cup cold water
½ cup sugar
1 tablespoon instant coffee
3 beaten egg yolks
1 cup water
¼ teaspoon salt
½ cup sugar
3 stiffly beaten egg whites
1 teaspoon vanilla

Soften gelatin in cold water. Stir together ½ cup sugar and coffee; beat into egg yolks. Gradually stir in water and salt. Cook over boiling water 5 minutes, stirring constantly. Add gelatin; stir till dissolved. Chill till slightly thickened. Gradually beat remaining ½ cup sugar into egg whites. Stir in vanilla. Fold into gelatin mixture. Pour into 10-inch graham cracker crust. Chill. Makes 8 servings. □

Photo TipS

By Lynda Richardson

Your Third Magazine Assignment: The Power of Color

As the flowers of spring decorate the winter weary countryside it brings to mind the inspiring power of color. For this year's special assignment, I would like to challenge you to search throughout Virginia to capture the most gorgeous and colorful images you can find.

Entries will be judged on the photographer's creativity in selecting, using and positioning color to enhance the overall photograph. I will be looking for images that use one color overall as well as those which contain brilliant eye popping color. All photographs must be taken of natural or native plants, animals and scenery so now is a good time to watch for the colors of spring. (Just don't forget how beautiful summer and fall can be as well!)

To help you along the way, a column on color will appear in the June 96 "Photo Tips" column. "Your Third Magazine Assignment" rules are as follows:

1) Photographs must be shot in 35mm slide format. (This is for ease of handling and desirability for magazine use.) Reproduction quality duplicate slides are acceptable if you don't want to send the originals. Please mark slides to indicate if they are duplicates or originals.

2) Since this is an "assignment," photographs must be taken between May 1, 1996 and October 18, 1996.

3) Deadline for this assignment is October 18, 1996. All photographs must be postmarked by October 18, 1996. Mail to: Photo Tips Assignment, c/o *Virginia Wildlife*, P.O. Box 11104, Richmond, VA 23230-1104. Federal Express address would be 4010 W. Broad Street, Richmond, VA 23230. I would recommend sending your photographs by certified, registered mail or by courier such as Federal Express which uses a tracking number to locate lost packages. Submissions received after the deadline will not be considered and will be returned immediately.

4) All submissions must be accompanied with a self-addressed stamped envelope (SASE) for the return of your slides. Submissions without SASEs will not be returned! All submissions, except the winning entries, will be mailed back by December 31, 1996. Winning entries will be returned by March 30, 1997. Whichever mailing method you choose, don't forget to include an additional envelope with enough postage or a filled out Federal Express form, including your account number, for us to return your slides to you. Please do not send money, checks, or loose stamps.

A brilliant yellow male goldfinch feeds on the seed heads of Nodding thistle. The rich pink and yellow stand out quite well with the soft green background. Photo by Lynda Richardson.

5) Slides will only be accepted if they are submitted in clear plastic storage sheets between two rigid pieces of cardboard. Slide sheets should be available at your local camera store.

6) On the front/bottom of each slide must appear your name, address and telephone number. Also, on the front of your slide, draw an arrow pointing to indicate the top of your slide. Number each slide. Slides will not be accepted if this information is not included on every slide.

7) Include with your entry a "Delivery Memo." This is a sheet of paper which has your name, address and telephone number at the top and a listing of your slides and total number you are sending. Refer to each slide by number in the Delivery Memo and include any necessary caption information including what lens you used, exposure information or any stories behind the photographs. Don't forget to make a copy for yourself so you can make sure we get all your slides back to you.

8) Submission is limited to six slides per person.

9) Neither *Virginia Wildlife* nor Lynda Richardson will be responsible for the receipt of damaged slides or the return of slides not accompanied by a self-addressed stamped envelope.

10) Though this is an "assignment," photographers will not be financially compensated for the use of their images, expenses incurred while shooting, film processing or time spent on assignment.

These rules might sound a bit tough, but this will give you an idea of what photographers have to go through everytime they submit their work to magazines or other contests.

So go out there and enjoy the outdoors! Take this opportunity to challenge your eye and capture the "Power of Color." Good luck! I look forward to reviewing your assignments! ☐

May Afield

by Jack Randolph

Mulberries, Stripers, Trilliums, and Things

May is one of Virginia's premier months. The weather is still pleasant, although at times we feel the hot breath of summer, and the countryside continues to carry the gentle scents of spring. May is special because, among many other things, it brings with it the grandest wildflower display of the year.

Those of us who live on the eastern flatlands of the Old Dominion are often unaware of the beauty of spring in the hinterlands. In some parts of the western side of Virginia, May offers a wildflower display that can take your breath away. The center of all of this, the Yankee Stadium of wildflower watching, is on Game Department land. It is the G. Richard Thompson Wildlife Management Area (WMA) located just west of Warrenton.

Prime time for wildflower watching is usually about the second week in May. Tall transmission towers on the WMA serve as beacons to flower watchers as they stand guard over the heart of the area most rich in trilliums—the signature flower of the area.

The trilliums are there in great numbers, but they are not alone. They keep company with dozens of other flowers of spring including mayapples, violets, ferns, wild ginger, jack-in-the-pulpit, and many others. You don't have to be an expert to enjoy these flowers. If you appreciate beauty you'll be well rewarded, but there are several excellent guide books to wildflowers on the market. Just shove one in your pocket, load the family into the car and you'll have a great time.

As berries go, the mulberry doesn't command much respect. Most people don't find them very tasty, but the birds like them and so do fish. Anyplace a mulberry tree grows close enough to the water so the berries drop in you'll find catfish and carp just waiting for the next ripe offering.

The Appomattox River in Petersburg is one such place. Mulberry trees, bearing both black and white berries, grow close to the bank. The fish seem to prefer the black berries, but the white stay on the hook better.

Mulberries work best as bait if they are allowed to drift unimpeded in the current. Ultra-light spinning tackle, loaded with 4-pound test line and armed with nothing more than a #4 short shank hook is standard equipment. This tackle, great for berry floating, is a little under the weight considering the fish you encounter. I've watched Larry Moody of Petersburg stand in the rushing current with straining rod held high as a broad-shouldered carp gathered in all of his line.

Bill Lea

Berry fishing is not for the faint-hearted, but it offers an off-beat change of pace.

May is also the month of the shellcracker. The best time is usually the first full moon, which is Friday, the third. The place is Western Branch Lake in Suffolk, followed closely by nearby Lake Prince.

Actually the shellcracker is the redear sunfish, a midwestern import. In the Suffolk Lakes this sunny runs big. The Game Department awards a trophy citation for shellcrackers weighing a pound or more or exceeding 11 inches in length. These lakes produce citations shellcrackers by the hundreds.

If you never tried this fishing before, it isn't fly rod, bug poppin' fishing. Instead it's red wigglers or nightcrawlers fished plumb on the bottom in a dozen feet of water. These fish fight hard and eat better. What more can you ask for?

The striped bass is the other fish of May, more now than ever. This month we can catch them in inland and tidal waters. While the tidal stripers took care of most of their spawning last month, their landlocked cousins are busy spawning well into May. This is the time when Lake Gaston's stripers pile up below Kerr Dam. The fishing below the dam is great when the water is running through the turbines.

Above Kerr Dam the stripers in Buggs Island Lake have largely departed, moving up the Dan and Staunton Rivers to spawn. Anglers flock to both rivers to catch stripers on the run.

A victim of the June '95 flood, the striped bass hatchery at Brookneal has received major damage to its spawing building. Until repairs are made, hatchery personnel will electrofish spawning stripers from the Staunton River and they will be spawned out in a North Carolina hatchery. The fry will be returned to holding ponds at Brookneal where they will grow to fingerling size for stocking in Virginia's striper waters. All Virginia waters are expected to receive their normal stocking of fingerling stripers.

Anglers on Smith Mountain Lake are reminded that the special regulation prohibiting the use of artificial lures in Cedar Key are in effect from April 15 and throughout the entire month of May. As far as the tidal waters go, check the saltwater fishing regulations for the open striped bass seasons in May. □

National Safe Boating Week, May 18-24